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Lectures on tactics for officers of the Army, Militia and Volunteers

Frederick Hotham Dyke

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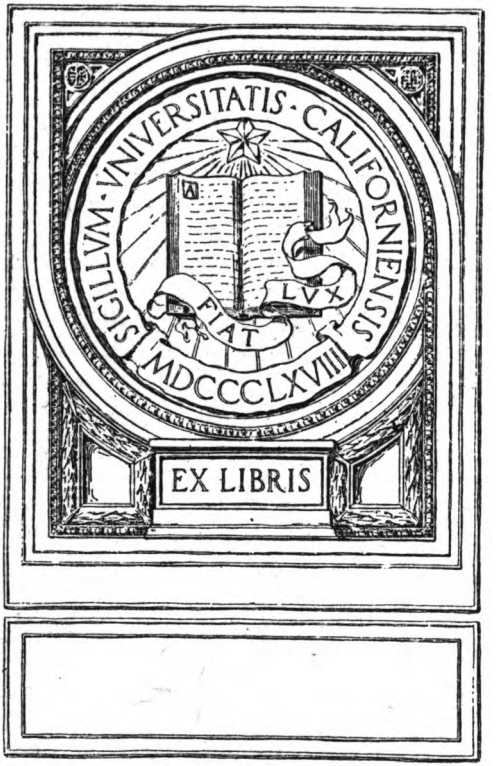

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66

LECTURES ON TACTICS

FOR

Officers of the Army, Militia and Volunteers,

BY

Lieut.-Colonel F. H. DYKE.

SPECIALLY ADAPTED TO THE SYLLABUS IN THE QUEEN'S REGULATIONS.

Price 4/-, by Post 4/3.

LONDON:

HARRISON AND SONS, 59, PALL MALL, S.W.

ENTERED AT STATIONERS' HALL.

1891.

[Fifth Edition.]

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PREFACE TO FIFTH EDITION.

THE favourable reception which this work has met with from Officers generally, and especially from Officers of the Volunteers, has exhausted four editions within five years of its publication. The author has adopted in the present edition many of the numerous suggestions which he has received from various quarters and for which he returns thanks.

These Lectures are an attempt to put in a compact, portable, and, above all *economical* form, the various items which constitute the present course of tactical instruction necessary to qualify officers of the army for promotion. They are also addressed to officers of the Militia and Volunteers.

The subject matter, and order of arrangement are based entirely upon the Tactical Syllabus contained in the Queen's Regulations; it is hoped therefore that they may be found useful, especially to officers who are unable to attend a garrison course, and to Volunteer officers who wish to pass the examination in tactics.

The additions required by G.O. 29 of 1887, namely, Detached Duties of Cavalry; and the Employment of Horse Artillery with Cavalry acting independently, have been made.

The Author has added some extracts from the "Letters on Artillery" by Prince Kraft zu Hohenlohe Ingelfingen. who held high commands in the Prussian Artillery during the campaigns of 1866 and 1870.

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Lecture I.

As these Lectures are addressed to Officers of Militia and Volunteers, as well as to those of the Regular Forces, perhaps it may be as well to commence with a brief sketch of "Organisation."

The art of organising an army consists in dividing and subdividing it into fractions capable of being handled by one man.

If these fractions are too large, they become unwieldy and lose mobility; if they are too small we shall have confusion from multiplicity of parts. Thus then we require a starting point or standard, on which to base our arrangements, and it is found in the fact that one superior can control from four to eight subordinates.

For instance, a company is divided into four squads, under non-commissioned officers and subalterns, who are commanded by a captain. Four companies form a half-battalion, under a major; or should this arrangement be impracticable, eight companies are under the lieutenant-colonel.

1. The following table gives the detail of the various units as fixed by G. O., July, 1888:—

	Officers.	Rank & File	Horses.	Vehicles.
Battalion of Infantry	30	1036	70	16
Regiment of Cavalry	32	634	614	20
Battery of Horse Artillery	7	179	193	7
„ Field Artillery	7	170	141	7
Mounted Infantry Battalion... ...	48	1052	1098	28
Infantry Detachment with 2 Machine Guns	1	12	8	Nil
Cavalry Detachment with 2 Machine Guns	1	17	14	Nil
Mounted Engineer Troop... ...	4	113	119	9
Pontoon Troop	5	211	190	28
Field Engineer Company	7	210	70	13
Telegraph Troop	6	241	171	22
Field Park	1	44	50	12
Commissariat & Transport Company	4	263	316	65
Bearer Company...	3	61	4	15
Field Hospital...	5	40	6	Nil
Reserve Ammunition Column ...	7	184	217	31

A Brigade of infantry consists of—
Brigade Staff,
Four Battalions of Infantry,
Two Machine Guns,
One Company C. and T.,
One Sick Bearer Company,
One Field Hospital Company.

Total: combatants—119 officers, 4047 rank and file; Non-combatants—14 officers, 373 rank and file; 536 horses, 120 vehicles.

Although the Division includes arms other than infantry, it is officially styled "a Division of Infantry."

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A Division of Infantry consists of—
Divisional Staff,
1st Brigade of Infantry.
2nd Brigade of Infantry,
One Squadron of Divisional Cavalry,
Three Batteries F.A.,
One Divisional Reserve Ammunition Column,
One Field Company R.E.,
One Company C. and T.,
One Field Hospital.

Total: combatants—287 officers, 8840 rank and file; non-combatants —40 officers, 1020 rank and file; 18 guns, 4 machine guns, 2164 horses, 406 vehicles. Thus it will be seen that a division of infantry is a complete tactical and administrative unit, able if necessary to march and fight independently.

AN ARMY CORPS.

First Division.	*Second Division.*	*Third Division.*	*Corps Troops.*
Divisional Staff	Divisional Staff	Divisional Staff	CORPS CAVALRY.
,, ,,	,, ,,	,, ,,	H Q & 1 Squadron
FIRST BRIGADE.	FIRST BRIGADE.	FIRST BRIGADE.	CORPS ARTILLERY.
Brigade Staff	Brigade Staff	Brigade Staff	3 Batteries H. A.
,, Regiment	,, Regiment	,, Regiment	2 Batteries F. A.
,, ,,	,, ,,	,, ,,	Army Corps Resrv.
,, ,,	,, ,,	,, ,,	Ammunition Col.
,, ,,	,, ,,	,, ,,	CORPS ENGINEERS.
2 Machine Guns	2 Machine Guns	2 Machine Guns	1 Field Company
1 Company C & T	1 Company C & T	1 Company C & T	1 Pontoon Troop
1 Sick Bearer Co.	1 Sick Bearer Co.	1 Sick Bearer Co.	H.Q. & ½ Telegraph
1 Field Hospital ,,	1 Field Hospital ,,	1 Field Hospital ,,	Battalion
			Field Park
SECOND BRIGADE.	SECOND BRIGADE.	SECOND BRIGADE.	CORPS INFANTRY.
Brigade Staff	Brigade Staff	Brigade Staff	1 Battln. Infantry
,, Regiment	,, Regiment	,, Regiment	2 Machine Guns
,, ,,	,, ,,	,, ,,	2 Comp. Signallers
,, ,,	,, ,,	,, ,,	C & T CORPS.
,, ,,	,, ,,	,, ,,	1 Company Details
2 Machine Guns	2 Machine Guns	2 Machine Guns	2 Bakery Comps.
1 Company C & T	1 Company C & T	1 Company C & T	
1 Sick Bearer Co.	1 Sick Bearer Co.	1 Sick Bearer Co.	MEDICAL.
1 Field Hospital ,,	1 Field Hospital ,,	1 Field Hospital ,,	1 Field Hospital
			Chaplain's Dept.
1 Squadron of Divisional Cavalry	1 Squadron of Divisional Cavalry	1 Squadron of Divisional Cavalry	Ord. Store Dept.
3 Batteries F. A.	3 Batteries F. A.	3 Batteries F. A.	Army Pay Dept.
1 Divisional Reserve Amn. Col.	1 Divisional Reserve Amn. Col.	1 Divisional Reserve Amn. Col.	Veterinary Dept.
1 Field Comp. R.E.	1 Field Co. R. E.	1 Field Co. R. E.	Military Police
1 Company C & T	1 Company C & T	1 Company C & T	Army P. O. Corps
1 Field Hospital	1 Field Hospital	1 Field Hospital	

Total: combatants—1013 officers, 29,635 rank and file; non-combatants—145 officers, 3971 rank and file; 84 guns, 14 machine guns, 10,068 horses, 1755 vehicles.

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A Brigade of Cavalry consists of—

Brigade Staff,
Three Regiments of Cavalry,
Two Machine Guns,
1½ Companies C. and T. Corps,
One Bearer Company,
One Field Hospital.

Total: combatants—96 officers, 1651 rank and file; non-combatants—18 officers, 262 rank and file; 2 machine guns, 2219 horses, 136 vehicles.

A Division of Cavalry consists of—

Divisional Staff,
Two Brigades of Cavalry.

DIVISIONAL TROOPS.

Two Batteries Horse Artillery,
Two Machine Guns,
Mounted Detachment R.E.,
One Battalion Mounted Infantry,
Divisional Reserve Ammunition Column,
One Company C. and T. Corps,
One Field Hospital.

Total: combatants—307 officers, 5135 rank and file; non-combatants—18 officers, 208 rank and file; 12 guns, 6 machine guns, 6518 horses, 431 vehicles.

A single army corps would be accompanied by a cavalry brigade. Should two army corps take the field, they would have a cavalry division attached, and the grand total would be: combatants—2333 officers, 64,805 rank and file; Non-combatants—308 officers, 8150 rank and file; 180 guns, 34 machine guns, 26,654 horses, and 3941 vehicles.

The amount of ammunition carried into the theatre of war for artillery, including that carried in gun carriages and limbers, is five hundred rounds per gun.

The amount of ammunition provided for infantry, including that carried by the men is 480 rounds per man.

To continue—In 1870, the Germans brought into the field no less than 16 Army Corps, and in accordance with the above principle, divided them into three armies, one of three corps, one of seven corps, and one of six corps. By this means the head-quarter staff had only three units to control, but these three units included 500,000 men.

The first object of organisation is tactical efficiency; the second is facility of "administration."

A body of troops may be said to be tactically efficient when they can march, drill, and shoot well.

Administration is the art of supplying troops, whether in quarters or in the field, with food, clothing, ammunition, medical requisites, pay, etc., and a body of troops may be considered tactically and administratively efficient when it is provided with all things necessary for marching, fighting, and subsistence.

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UNITS.

A TACTICAL UNIT is any body of troops trained and ready to march, manœuvre and fight under one superior. For instance, an Army Corps is a tactical unit under a general officer, and a mere section of 40 men detached under a subaltern for the defence of a house is also a tactical unit.

A COMPLETE TACTICAL UNIT is one which combines the three arms of the service, as in the case of a Division.

A movable column of the three arms, as frequently used in our little wars, is also a complete Tactical unit.

AN ADMINISTRATIVE UNIT is any body of men who are provided with food, clothing, pay, ammunition and all things necessary for their subsistence and maintenance by one superior or one department. Great advantage is gained where the Tactical and Administrative conditions can be combined, as in the regiment of infantry or cavalry or battery of artillery; and this then becomes a Tactical and Administrative unit.

No attempt will here be made to go further into these subjects. The details which make the soldier tactically efficient are, or should be, familiar to every regimental officer; the details of administration form no part of the course for which these lectures were written.

STRATEGY.

Strategy is the art of moving an army on the theatre of war, with a view to placing it in a favourable situation for battle.

TACTICS.

The term Tactics is officially defined as follows: the manœuvres of the three arms combined become "Tactics," and inasmuch as one arm by itself is incomplete, such a term is inapplicable to the movements of but one arm.

MINOR TACTICS.

But modern war has introduced, or perhaps to speak more correctly, has imperatively demanded the study of what are now known as "Minor Tactics." The province of Minor Tactics is not merely on the battle-field but off it; in fact, their application never ceases during the campaign. An example will illustrate their use better than description. An officer is placed in command of a battalion of infantry, a troop of cavalry, and two guns, and is ordered to march to a given locality and take up outposts. Where is he to place his men? Into what fractions is he to divide them? How is he to post each fraction? What are the duties of each? With what orders is he to furnish each? How is he to employ his cavalry? Where should he post his guns?

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Again, on the right of the position he takes up, is a wood, in the centre is a village, on the left is a defile leading towards the enemy. How is he to treat each? In the event of an attack by the enemy how is he to act? The answers to these and a hundred similar questions should be in his head, for if he had a whole library of military books at hand, time would fail him to refer to them. Every moment of delay means so much extra fatigue to his men, already wearied by a long march, so much injury to their *morale*, and so much advantage to the enemy. One of the principal features of modern war is the responsibility which devolves upon subordinates both on and off the actual battle-field, and every officer should prepare himself to accept such responsibility whenever and wherever it may come. Minor Tactics then may be defined as the art of handling small bodies of men on service; so as to economise their physical powers and to secure a proper division of work among all, so as to dispose them to the best advantage in action, and to obtain their highest fighting value whether the action be a pitched battle or a mere skirmish. In a word "Minor Tactics" means that knowledge of his duty on the part of an officer which never fails to command the confidence of his men.

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Lecture II.

INFANTRY.

Home's Tactics.

INFANTRY has been described as "the main stay and the backbone of all armies, whether it be viewed in the light of numbers or its action on the field of battle. Its fire is more deadly than artillery, its action is sure while that of cavalry is fitful. On the infantry the brunt of the fighting falls, it suffers more in action and more on the line of march."

German Official Account.

NOTE.—The total losses of the German army during 1870-1 were thus divided:—

Infantry	.. .. ..	17·6	of their total.
Cavalry	.. .. ..	6·3	,, ,,
Artillery	.. .. ..	6·5	,, ,,
Engineers	.. .. ..	2·8	,, ,,
Train	.. ..	0·3	,, ,,

Thus we see that the proportionate loss of Infantry was greater than that of all the other arms combined.

Throughout the whole war of 1870-1, the proportion of Germans killed to the entire force was $\frac{1}{86}$.

The proportion of officers killed and wounded was $\frac{1}{6}$, and the proportion of men killed and wounded was $\frac{1}{11}$.

The action of the other two arms is auxiliary to that of the infantry.

Prince Hohenlohe.

Under the present system of conducting war there is only one arm that can be called independent, and that is the infantry. The infantry is strictly the army, the nation in arms. It needs the assistance of the other arms and these are, and will continue to be, auxiliary arms to the infantry, and can fulfil their object well and rise to their highest efficiency only when they are conscious of their character as auxiliary arms, and have no other aim than to help the army, that is the infantry.

CHARACTERISTICS OF INFANTRY.

In Peace: Easy to raise, train, and equip; comparatively inexpensive.

In War: Combines Fire and Shock, also Fire and Motion, easily manœuvred and brought into action; can fight on broken ground, men can use their weapons independently, is self-protecting, can furnish men for trench duties, working parties, &c., which the other arms cannot spare. Slow in movement.

WEAPON.

The Martini-Henri rifle; sighted up to 1,400 yards, but perfectly effective at large objects such as columns, batteries, &c., up to 3,000 yards.

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AMMUNITION.

G.O. 161 of 1887 provides as follows:—

Rounds per rifle on first taking the field.

70 carried by the soldier.
30 in four S.A.A. carts and on two mules accompanying each regiment.
10 in the regimental baggage waggons.
40 in the Divisional ammunition column.
30 in Army Corps ammunition column.

180

Before going into action each battalion will detail a mounted officer to have charge of the regimental reserve ammunition.

Each company to detail one N.C.O. and two or three privates as carriers.

When a battalion is about to attack, every man is to have a hundred rounds on his person. One S.A.A. cart and one mule will follow close in rear of each half battalion; remaining carts in rear of the centre. The carriers to distribute the ammunition to the men.

Officers and buglers to carry 40 rounds each to distribute if necessary.

NOTE. The above calculations are for the Martini-Henry rifle. Should a ·298 bore be introduced, the amounts will be increased.

EXPENDITURE

Varies immensely, and records of past battles and actions fail to give any standard by which actual requirements can be estimated.

Examples: At the Battle of Königgratz, in 1866, two battalions of Prussian Guards averaged 13 and 14 rounds per man. At the action of Trautenau the 1st Battalion 43rd Regiment averaged 23 rounds per man. In no case did any Prussian soldier expend the ammunition on his person (60 rounds). The total expenditure of ammunition by the four Prussian armies which took part in the war of 1866, namely, the First and Second Armies, the Army of the Elbe and the Army of the Maine, was 1,850,000 rounds, which, with a total aggregate of 270,000 combatants, gives an average of 7 rounds per man. In 1870, one division of the French Imperial Guard, at Rezonville, averaged 20 rounds a man. During the period from 2nd August to 23rd September, the French army blockaded in Metz averaged 25 rounds a man. Same campaign: The Germans, at St. Privat, 6 rounds a man; at Beaumont, 9; at Sedan, 25 battalions averaged 10 per man. Highest recorded in German army during one day: 108th Regiment at Viviers, 16 per man. During the defence of Rorke's Drift, which lasted 13 hours, 9,000 rounds were fired, giving an average of 80 rounds per man, and 15 rounds fired for every Zulu killed. At the second action at Charasia, in Afghanistan,

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1880, 70,000 rounds of Martini and Snider ammunition were fired by our troops, with a result of 200 Afghans killed and 300 wounded; which figures include the execution done by our Artillery as well. This gives about 150 rounds for every casualty. At the battle of Kandahar, Sir F. Robert's army averaged 5 rounds per man.

TACTICAL UNITS.

A battalion in our service consists of 8 companies, and a company at war strength is 125 men. Nearly all foreign armies have 4 companies of about 250 men, but this is solely due to motives of economy in the matter of officers. In war it is found that the battalions are under-officered.

NOTE.—In 1870 the Germans lost 1 officer to 8 men at Weissemburg; 1 officer to 20 men at Wörth; 1 to 19 at Gravelotte, at which latter battle 2 battalions lost the whole of their officers. During the Zulu war our casualties were 1 officer to 18 men, and during the Afghan war, 1 officer to 13 men. At Tel-el-Kebir the proportion of officers to men killed was 1 to 5.

Heavy were the losses with which we (Germans) paid for our frontal attacks . . . . those who had fallen were the bravest men who exposed themselves most in the fighting line; *and above all there were very few officers remaining.*

TIME AND SPACE OCCUPIED.

Each man is allowed thirty inches laterally, thus 1,000 men drawn up in line, that is with half of them in the rear rank, will occupy 15,000 inches, or 416 yards.

As this book deals only with tactics, the front of 24 inches per man, which is allowed for mere drill and parade, will be disregarded.

In fours or files the length of road required is the same as front in line. [All calculations should be made in yards.]

The depth of quarter column is expressed in yards by 5 times the number of companies less one.

The depth of infantry in line is three yards.

Pace for marching may be taken at three miles an hour.

Ex. 1. How long will it take a body of infantry 1,000 strong to pass a given spot at three miles an hour? 1,000 men=416 yards, or including colours say 420 yards. 3 miles an hour is 5,280 yards in 60 minutes, and we have 5,280 : 420 :: 60.

Ans.: Nearly 5 minutes.

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Ex. 2. A scout reports that a body of infantry took 7 minutes passing him. They were marching 4 miles an hour, but he noticed several intervals. Required their strength. 4 miles an hour is 7,040 yards in 60 minutes, and we have thus the length of the column— 60 : 7 :: 7,040.

Ans.: 820 yards, which multiplied by $2\frac{2}{5}$ that is, reduced to intervals of 15 inches, gives 1,968 men.

Deducting 20 per cent. for intervals and loose marching, we have 1,575 men.

Ex. 3. Given a brigade as follows: 1st battalion, 8 companies, each 100 strong; 2nd battalion, 6 companies, each 90 strong; and 3rd battalion, 4 companies, each 75 strong; in mass of columns. Required the depth of the mass, the length of front when deployed into line, and the time required to deploy.

The depth of a quarter column=number of companies less one×5 and we have

1st battalion	7×5=35	yards.
2nd ,,	5×5=25	,,
3rd ,,	3×5=15	,,
2 intervals of 12 paces as per field exercise	20	,,

Ans.: 95 yards.

The front in line will be,

1st battalion	333	yards.
2nd ,,	225	,,
3rd ,,	125	,,
2 intervals of 25 yards	50	,,
Total	733	yards.

The time for deployment will be that required by the left hand man of the rear company of the mass, who will traverse the length of the line less front of leading company, that is 690 yards, which at three miles an hour gives 8 minutes, or, allowing for the depth of the mass, say 9 minutes.

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Lecture III.

CAVALRY.

GENERAL FUNCTIONS.

When the rifled musket first appeared, numerous infantry enthusiasts announced that the days of cavalry were past. When the breech-loading rifle appeared, the same cry was repeated. yet cavalry still maintains its place in all European armies, But although the arm remains, its duties have changed. The sword and lance being still as they were a hundred years ago —the principal weapons of the cavalry soldier—it follows that he is now placed at a serious disadvantage in actual combat with the other two arms, both of which have made enormous strides of late years with their respective weapons. Neither the Franco-German war nor the Russo-Turkish War produced a single decisive blow struck by the arm during a battle, nor a single effectual pursuit of a beaten army after a victory.

But it would be a great error to suppose that because cavalry has lost much of its power when actually opposed to the other two arms, there is little further use for it. On the contrary, it has, when its functions are properly understood, become more important than ever. Its duties now are to be the very eyes and ears of an army. Spread out far in front and on the flanks, it should watch the enemy, report his every movement, harass and annoy him by its perpetual presence and watchfulness, secure and send back supplies from the country, and finally, conceal the movements of its own army by drawing a screen over it, whether marching or halted.

Speaking of the French disasters in 1870, the Emperor Napoleon wrote—"The enemy concealed his movements so well behind the impenetrable screen of cavalry which he threw forward, that in spite of the most persevering researches it was never known where the main body of his forces really was." Surely no higher compliment was ever paid to the utility of any arm of the service. Nor does it follow that the *rôle* of cavalry on the battle-field is over. Von Moltke observes—"Because in modern warfare the long range and destructive fire of artillery necessitates a scattered formation, there will be more frequent opportunities for those brilliant dashes of small bodies of cavalry."

Another German writer, Captain May, says—"So long as rapidity, boldness, and dash are active agents in war, cavalry will retain its importance."

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CHARACTERISTICS.

Characteristics in Peace: Very expensive to equip and maintain, and takes longer to train than infantry.

War: Formerly fought by shock alone, but Fire has now become indispensable.

Tactical deductions from the war of 1870-1. Boguslawski.

In these forays, and the encounters which resulted from them, our (German) cavalry was often met by dismounted French horsemen armed with Chassepots, whose fire absolutely stopped the advance of our men. . . . . Fighting took place on foot for the possession of certain localities, even against French infantry, and often ended with victory for our light horsemen. . . . . The lancers, in consequence, did their best to arm themselves with rifles. . . . The question is simply that of enabling cavalry at need to overcome the resistance of riflemen.

The force of cavalry depends on the combined action of man and horse, a combination which may or may not be forthcoming at the desired moment. Has power of rapid movement, and can seize momentary opportunities as they occur. Its presence generally produces some moral effect on infantry at first, which, however, wears off during a campaign. Has little defensive power when mounted, especially on the flanks. Is useless on steep or broken ground, is easily thrown into disorder, and difficult to rally.

WEAPONS.

Dragoons and Hussars carry sword and Martini carbine, the latter sighted to 1,000 yards. Lancer regiments carry sword, lance and carbine. In India several of our native lancer regiments have the front rank equipped with lance and sword, the rear rank with sword and carbine.

AMMUNITION.

Twenty rounds are at present carried in the field by men armed with carbines.

NOTE.—The Russians appear to avail themselves largely of cavalry fire actior According to the official account of the operations in Central Asia in 1880-1, the preparatory orders for a reconnaissance of Denghil Téppé include 120 rounds per man for cavalry and infantry; and after the operation we are told that the expenditure was "75 rounds per cavalry carbine, and 12 rounds per infantry rifle." Again, after the storming of Denghil Téppé, we are told that the cavalry were led through the town to pursue the flying enemy, and expended, during the pursuit, 12,500 rounds.

CAVALRY UNITS.

With us the cavalry regiment consists of 8 troops, in which respect we stand alone, all foreign armies having four squadrons. We tried the squadron system a few years ago, and shortly

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afterwards abandoned it, principally because it was unsuited to the numerous small detachments which the arm has to furnish, especially in Ireland The squadron is however adhered to for purposes of manœuvre, and thus the administrative and tactical units in our cavalry are different.

PACES.

Pace: Walk, 4 miles an hour; trot, 8; gallop, 12.
The term "canter" is never used out of the Riding School.

Each horse occupies one yard laterally; thus a squadron 80 strong in line, two deep, would require 40 yards of front. From nose to croup 8 feet. Depth of a squadron in line, including squadron leader in front, and serre-files in rear, is 20 yards.

In marching in "fours" that is 8 abreast, the length of road occupied equals front in line. In "sections, that is, four abreast, it is double the front in line. In half-sections, that is two abreast, it is four times the front in line. Between squadrons in line, 12 yards interval is allowed.

Example: What length of front will a cavalry regiment of four squadrons, each 80 strong, require?

$4 \times 40 = 160$ yards,
Intervals $3 \times 12 = 36$ yards. *Ans.* 196 yards.

Ex. 2: How long will said regiment take to pass a given spot at a walk, in half-section?

Half-sections $= 4 \times 160 = 640$ yards.
Four miles an hour is 1,760 yards in 15 minutes, and we have $1{,}760 : 640 :: 15$.

Ans. $5\frac{1}{2}$ minutes nearly.

Ex. 3: A body of cavalry was observed to take four minutes in passing a given spot at a trot. They were four abreast, and several intervals were noticed. How many were there?

Eight miles an hour is 1,760 yards in $7\frac{1}{2}$ minutes, and we have first to find the length of the column in yards, thus $7\frac{1}{2} : 4 :: 1{,}760$.

Ans. 940 yards nearly.

Had they been in "fours," or 8 abreast, their numbers would have been the same as in line, two deep, or 1,840; but as they were in "sections," four abreast, we have 940 men. Deducting 10 per cent. for intervals, we have, in round numbers, 840.

NOTE—There appears to be a growing predilection for mounted infantry in some shape. Not that this would be any novelty, for it would only be a return to the days of "dragoons," who were once simply mounted infantry.

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As long ago as 1836 Jomini wrote—"Opinions will always be divided as to those amphibious animals called dragoons. It is certainly an advantage to have several battalions of mounted infantry, who can anticipate an enemy as a defile, defend it in retreat, or scour a wood; but to make cavalry out of foot soldiers, or a soldier who is equally good on horse or foot is very difficult. . . . . It cannot be denied, however, that great advantage might result to the general who could rapidly move up ten thousand men on horseback to a decisive point and then bring them into action as infantry.

The subject has been much discussed and divers proposals of a more or less sweeping nature have been made. One was to the effect that as the expense of both cavalry and mounted infantry was out of the question; the whole of our existing cavalry should be converted into mounted infantry, on the ground that sword and lance are both obsolete and there is no duty demanded of cavalry which could not be performed, and performed better, by mounted infantry. Another by a German officer advocated the entire abolition of cavalry, the money thus saved to be expended in maintaining additional infantry proper.

No nation has yet taken any step in the matter nor does there seem much probability of any immediate change.

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Lecture IV.

ARTILLERY.

FUNCTIONS.

Clausewitz.

Modern artillery has been described by a German writer on tactics in the following terse sentence—"Worse than useless off the battle-field, but invaluable on it." As, however, the functions of the arm are limited entirely to the battle-field, we will examine them first.

If there is one result which breech-loading rifles have established more clearly than another, it is that troops can no longer stand up in the open under hostile fire, but must avail themselves of cover, and this holds good, especially with the defensive. The art of obtaining cover from behind which, however, fire can be delivered, has attained to a pitch unknown in former days. Villages, houses, woods, gardens, enclosures, walls, hedges, etc., are now occupied and prepared for defence; should none of these be forthcoming, entrenchments of a strength varying from the ordinary shelter trench to the full field parapet are constructed, and behind the shelter thus obtained, the weaker side awaits the attack.

Here, then, we have one of the functions of artillery—to do that which it alone of the three arms has power to do, namely to batter down solid masonry, smash obstacles, make breaches in walls and entrenchments, and to spread confusion and disorder among the ranks of the defenders.

Lord Wolseley.

The effect of artillery fire is more moral than actual; it kills but very few, but its appalling noise, the way it tears down trees, knocks houses into small pieces, and mutilates the human frame when it does hit, strikes terror into all but the stoutest hearts.

It is, in fact, not too much to say that for infantry alone to attack a properly prepared position, would be simply suicidal. It must first be "shaken" by the fire of the attacking guns.

"From Saarbruck to Sedan," Col. Knollys, R.A.

Meanwhile Bazeilles had been attacked by a brigade of Bavarians, who, being unsupported by artillery, were repulsed. Then the village was vigorously shelled by the German batteries on the opposite side of the Meuse; and after it had been judged that its defenders were sufficiently shaken, the Bavarians once more advanced to the assault supported by guns so posted as to be able to pour in a destructive cross fire. The French, conscious of the vital importance of this point, clung to it with desperate tenacity, repulsed their assailants with severe loss again and again, and for seven hours the fight surged backwards and forwards. At last, when the village had been reduced to a wreck and had been set on fire in numerous places by the shells of the Prussians, ... the gallant defenders fearfully thinned, relinquished their hold on Bazeilles, and fell back on Sedan.

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There is perhaps too great a tendency to regard artillery as an arm to be employed solely against *materiel*, to the exclusion of its undoubted powers against troops. The experience gained by the Germans in 1870, proves conclusively that a well handled and served artillery is capable of rendering good service at every stage of a battle.

Prince Hohenlohe.

At Spicheren it began by making the enemy's artillery abandon its post on the Rotherberg; it next repulsed the frequent counter attacks of the enemy on its position on the Folst, and finally secured possession of the Rotherberg. At Vionville our artillery commenced by harassing all the enemy's camps; it then maintained the fight in the centre until the infantry of the 3rd corps had arrived in sufficient numbers, on which occasion, unassisted by the other arms, it had to defend itself against the enemy's infantry; later on it contributed in conjunction with the infantry, to repulse the repeated counter attacks of the enemy. Finally it pushed forward with the infantry when it was already dark and assisted the latter to make certain of the victory which had been so hard to win.

The functions of artillery on the defensive are to counteract the effect of the attacking guns by engaging them first, and then to fire on the attacking infantry. But as, at this stage, the Synopsis only requires the general functions of the arm to be dealt with, all other details will be reserved for the lecture on artillery in action. Next in order we have to consider the

CHARACTERISTICS OF ARTILLERY.

In peace. Very expensive to equip and maintain, and takes longer to train than infantry.

In War. Fights by fire only, has long range (for particulars see further on). Can destroy both men and material. Moral effect of shell fire very great.

In the field it is bulky, complicated, cumbersome, and liable to casualties; occupies great space on the march and in action; cannot easily change position, powerless when moving; offers a large target; has no defensive power on flanks when in action, and frequently requires an escort from the other arms. Its action is also affected by wind. fog, etc.

NOTE—Liable to casualties.

Prince Hohenlohe.

On the following day an aide-de-camp passed by this point and found on a narrow crest which ran between two very steep ravines, an entire French battery which had been abandoned here. The team of the leading gun had been blown to pieces by our shells and the other guns could not pass it; thus the whole battery fell into our hands.

ARTILLERY WEAPONS.

The following abbreviations are used: H.A., Horse-artillery; F.A., Field-artillery; M.L.R. Muzzle-loading rifled; B.L.R. Breech loading rifled.

At present there are four classes of batteries which may accompany a British army into the field, namely:—

H.A. Batteries
F.A. Batteries (two classes light and heavy).
Mountain Batteries.
Position Batteries.

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H.A. BATTERIES are equipped with 6 B.L.R., 12 pr. steel guns, 7 ft. 7½ inches long, 3 inches calibre, 12 grooves ·04 inch deep and ·6 inch wide. Weight of gun 7 cwt. Charge of powder 4 lbs. Weight of shells filled and fuzed about 12½ lbs. Draught six horses. Total weight behind teams; gun and limber 33½ cwt. Waggon 36cwt. Gun carriage steel, fitted with a hydraulic buffer to absorb recoil.

LIGHT F.A. BATTERIES are equipped with 6 guns, similar, in all respects, to the H.A.

HEAVY F.A. BATTERIES are equipped with 6 M.L.R. 16 pr. guns, 6ft. 6in. long, 3½in. calibre. 3 grooves. Weight of gun, 12cwt. Powder charge, 3lb. Draught, 6 horses. This gun will in time be superseded by a B.L.R. from 18 to 22lbs.

MOUNTAIN BATTERIES are equipped with 4 M.L.R. jointed steel guns, weight 400lbs., of which the breech and muzzle portion each weigh 200lbs. Length 70·45 inches. Calibre 2·5 inches, rifled with 8 grooves. ·5in. wide and ·05in. deep. Powder charge, 1½lbs.

POSITION BATTERIES are equipped with 4 M.L.R., 40 pr. guns, 8ft. long, 4¾ inches calibre. 3 grooves. Weight of gun 34cwt. Powder charge, 7lb. Draught, 12 horses, or in India, two elephants. Also two 6·3 inch R.M.L. Howitzers. Length 56 inches, weight 17½cwt. Charge of powder, varies as required.

H.A. Batteries on peace establishment have three ammunition waggons, which, however, never manœuvre with them. On War establishment, they have six.

F.A. Batteries have six waggons, which accompany the battery on all occasions.

Position batteries have usually two waggons.

Mountain batteries have neither limbers nor waggons.

AMMUNITION.

A 12 pr. B.L.R. gun and waggon carries 30 rounds common shell, 70 shrapnel, and 8 case shot; total 108 rounds.

A 16 pr. gun and waggon carries 24 common shell, 72 shrapnel, and 4 case; total, 100 rounds.

EXPENDITURE.

As in the case of infantry, it varies immensely, and no estimate can be formed as to probable requirements.

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At the battle of Friedland, 1807, the French artillery engaged in the celebrated manœuvre of General Senarmont (6 batteries) fired an average of 72 round shot and shell and 12 case shot, in all 84 rounds per gun. At the Alma our field artillery fired 18 rounds per gun, and at Inkerman 53 rounds per gun. In the campaign of 1866, the artillery of the Prussian Guard Corps averaged 18 rounds per gun at the battle of Koniggratz. At this battle one battery of the 6th corps averaged 60 rounds per gun. During the Franco-German war, the artillery of one German corps averaged 14 rounds for each of 11 engagements, but at Sedan, one Prussian battery fired 126 rounds per gun. At the battle of Vionville however, the Prussian artillery engaged fired an average of 89 rounds per gun, while one horse artillery battery fired 194 rounds per gun. At the battle of Kandahar, the 18 guns of Sir F. Robert's army averaged 5 rounds per gun.

PROJECTILES.

The projectiles at present in use by our artillery in the field are,

Common shell.
Shrapnel shell.
Case shot.

COMMON SHELL is a hollow cast iron projectile filled with a bursting charge of gunpowder. In form it is much like an exaggerated snider bullet. The bursting charge is ignited by either a "time" or "percussion" fuze, which will be described further on. On explosion it is scattered into fragments with great force. It should be used against masonry, obstacles, earthworks, and troops in close formation at long range.

SHRAPNEL SHELL is similar in exterior appearance to common shell, except that the head is painted red to distinguish it. The metal however is much thinner, and the interior is filled with round bullets packed in rosin (200 bullets in the 12 pr.) At the base is a small bursting charge of powder which connects with the fuze at the head by means of a channel down the centre; a new pattern has the bursting charge in the head instead of in the base. The action of the shell is as follows: The fuze burns the exact number of seconds for which it has been "bored," and then ignites the bursting charge. The shell, which is now in full flight as a single projectile, is burst open and the bullets are set free, travelling onward with full velocity, but scattering as they go. The shell should be burst above and a little short of the object, or it loses its effect, and thus everything depends on the exactitude with which the fuze is bored. Shrapnel should be used against scattered troops in the open. It is in fact case shot at long ranges.

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CASE SHOT are simply cylinders of tin filled with bullets of lead hardened with antimony. The 12 pr. contains 340 (34 to the lb.) The bullets are packed in with clay and sand. On firing, the cylinder breaks up at once and the bullets proceed onwards, scattering from the muzzle. Case shot is only effective up to 350 yards at most, and is *never used except on the defensive;* that is when guns are threatened by a rush of infantry or cavalry. As before stated, each gun is provided with eight rounds only, and should more be required, as recently happened in Afghanistan, shrapnel is rammed into the gun, point foremost, and fired, when it breaks up at once.

Prince Hohenlohe. During the whole of the war 1870-71, the artillery of the Guard fired 25,000 rounds of shell and one round of case.

The above are the only projectiles now in use.

FUZES.

To understand modern projectiles properly, a brief description of fuzes is necessary.—There are two kinds, namely, "Time" and "Percussion."

TIME FUZES are constructed so as to ignite the bursting charge at any required second during the flight of the projectile, and thus to burst it in the air.

PERCUSSION FUZES are constructed as their name implies, to burst the shell on impact with any solid obstacle.

RANGES.

The possible range of modern field artillery may be said to be practically unlimited. For instance, Colonel Knollys, R.A., quotes a case in the Carlist war in which the Carlists effectually shelled the works of San Sebastian with some 16 pr. Whitworth guns from a distance of five miles, or nearly 9,000 yards. But as it is impossible at the time to see the effect of fire at such ranges, it is wasted, and the best authorities agree that artillery fire should not be used at ranges beyond which its effect can be seen.

Again, light guns may, from their superior mobility venture nearer to the enemy than those which are heavier, and the following ranges have been laid down as the useful limits at ordinary objects.

Position guns	from	1500	to 3000 yards.
16 pr.	,,	1000	to 2500 yards.
12 pr.	,,	800	to 2000 yards.

TACTICAL UNIT.

A battery of field artillery consists of six guns and six waggons.

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A half battery of three guns and waggons.

A division of two guns and waggons.

A sub-division of one gun and waggon.

Column of route is guns followed by their waggons in single file.

Guns in action or in line require 19 yards interval to enable the team of six horses to take ground at once to a flank if necessary; thus a battery in line or in action requires five intervals × 19 = 95 yards of front. Should more than six horses be used add 4 yards to each interval for each additional pair.

In column of route each vehicle and its team may be assumed at 15 yards in length. Between the rear of each and the noses of the succeeding team there should be an interval of four yards; thus we have—

12 vehicles = 180 yards.
11 intervals = 44 ,,

Total, 224 yards.

Ex. How long will a field battery take to pass a given spot at a walk.

Four miles an hour is 7040 yards in 60 minutes, and we have

7040 : 224 :: 60

Ans. 2 minutes nearly.

Remarks: It is generally admitted that the actual effect of artillery in action is far below what it should be, and is in no way commensurate with the improvements which have been expended on the arm or the tremendous power and range of the modern gun. This is attributable to several causes, among which may be mentioned:

(1) The effective range of any weapon is limited by the power of human vision and this limit has been nearly reached by the infantry rifle, consequently the gun is either compelled to fight at long ranges which neutralise its effect, or to come within infantry fire, thereby exposing the gunners and possibly the guns to loss.

(2) The close and massive formations of infantry which once offered such a target to artillery, have disappeared from warfare, and in their place we have dispersion.

(3) The art of gaining cover and concealment is now cultivated by infantry, to an extent which still further impairs the efficacy of artillery.

(4) The full development of the real power of rifled artillery depends on a combination of conditions seldom to be obtained on service; such as level ground on which to work the guns, absence of wind, fog, rain, etc, and quick and accurate determination of constantly varying ranges.

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Lecture V.

SPACE AND TIME OCCUPIED BY THE THREE ARMS.

In all calculations of time and space occupied by the three arms in combination, the following facts should be remembered:—

Infantry, as already stated, occupy when in line, 30 inches per man, and in fours or files, 15 inches per man. Thus as troops in line are always two deep, 15 inches per man will give the front in line, or the length of road occupied in fours or files. If the length of road occupied by infantry is given and their numbers are required, multiply the length in yards by $2\frac{2}{5}$, which will give the numbers. If the number of infantry is given and the length of road that they will occupy is required, divide by $2\frac{2}{5}$ to get the answer in yards.

Cavalry, in "fours," eight abreast, occupy a length of road equal to their *front* in line, and their numbers are the same as those in line two deep. If, therefore, we have 200 yards of road occupied by cavalry in "fours," we know that their strength is 400. Similarly, if 200 yards of road are occupied by cavalry in "sections" (four abreast), we know that their strength is 200, and in half-sections it would be 100. Conversely, 150 cavalry in half-sections would occupy 300 yards of road, in sections, 150 yards. and in fours, 75 yards.

Field Batteries occupy 224 yards of road.

To prevent confusion on the march, and to absorb accidental checks, 25 yards interval is allowed between cavalry and infantry units. Between artillery units, and between artillery and either of the other arms, $28\frac{1}{2}$ yards are allowed.

In calculating for transport, allow 20 yards for every vehicle drawn by six horses; 15 yards for every vehicle drawn by four horses; and 10 yards for every vehicle drawn by one or two (abreast) horses. These spaces include the intervals of four yards, which should be kept between separate vehicles.

A few examples are added:—

Ex. 1. How long will it take the following to pass, at 3 miles an hour?

400 Cavalry in sections
2 Batteries F.A.
3 Battalions, each 900 strong, in fours.

First, we must find the length of road occupied.

400 Cavalry in sections	.. ..	=	400 yards.
2 Batteries Field Artillery	.. ..	=	448 ,,
3 Battalions, 900 each	.. ..	=	1125 ,,
3 intervals of 28 yards	.. ..	=	84 ,,
2 intervals of 25 yards	.. ..	=	50 ,,
		Total	2107 yards.

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Next to find the time. 3 miles an hour is 1760 yards in 20 minutes, and we have,

1760 : 2107 :: 20. *Ans.*; 24 minutes.

Ex. 2. A spy reports that the following passed through a village at a trot:—

Cavalry, 2 abreast, taking 5 minutes.

Artillery, in column of route, taking 3 minutes.

Required the strength.

Here we must first find the length of the column.

Eight miles an hour is 1760 yards in $7\frac{1}{2}$ minutes, and for the cavalry we have,

$7\frac{1}{2}$: 5 :: 1760. *Ans.*: 1175 yards of cavalry, which in half-sections, gives 587.

For the artillery, a similar calculation gives 704 yards, which, divided by 224, gives a little over three batteries.

No allowance has yet been made for intervals in the march, and as no units are given, we must deduct 20 per cent., leaving in round numbers, 470 cavalry and two batteries.

Ex. 3. Required the front for troops drawn up on parade, as follows:—

1 Regiment of cavalry, 400 strong, in columns of sqnadrons.
1 Battalion of 8 companies, each 60 strong, in quarter column.
1 ,, 6 ,, 80 ,, ,,
1 ,, 4 ,, 70 ,, ,,
1 Battery, F.A.

As the cavalry and infantry are in column, we have only to find the front of one squadron or company.

1 squadron	=	59 yards.
1 Company, 60 strong	=	25 ,,
1 ,, 80 ,,	=	33 ,,
1 ,, 70 ,,	=	29 ,,
1 Battery, F.A ..	=	95 ,,
3 intervals of 25 yards	=	75 ,,
1 ,, of $28\frac{1}{2}$ yards	=	$28\frac{1}{2}$,,
	Total	$335\frac{1}{2}$ yards.

Ex. 4. How long will it take the said force to deploy into line in quick time, and what will be the length of the line? First, to find the length of the line.

The cavalry will require.. ..		200 yards.
3 squadron intervals of 12 yards		36 ,,
1 Battalion, 480 strong		200 ,,
1 ,, 480 ,, ...		200 ,,
1 ,, 280 ,, ...		117 ,,
1 Battery, F.A.		95 ,,
3 intervals of 25 yards		75 ,,
1 ,, of $28\frac{1}{2}$ yards		$28\frac{1}{2}$,,
	Total	$951\frac{1}{2}$ yards

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The time required to complete the deployment will be regulated by the distance that the left gun has to traverse, less the front originally occupied, that is to say, 616 yards, which, at 3 miles an hour, is 7 minutes.

Ex. 5 What length of road will the following convoy and escort require, and how long will it take to pass a given spot at 2½ miles an hour?

1 squadron, 60 strong, in sections; 1 Battalion of infantry, 700; 40 four-horse waggons; 50 carts drawn by two horses (abreast).

60 cavalry in sections ..	60 yards.
40 four-horse waggons	600 ,,
50 carts	500 ,,
1 Battalion, 700 ..	292 ,,
Total	1452 yards.

As regularity of march is not likely to be observed by a convoy, add 20 per cent. to the above, making a total of 1742 yards, which at 2½ miles an hour will require about 23 minutes.

The following rule was given by the late Sir George Colley, for rough and hasty calculations: Allow two infantry or one cavalry soldier for every yard of road, and 20 yards for every vehicle.

Again, in estimating the numbers of passing troops, allow roughly (at quick time for infantry or walk for mounted branches) —200 infantry *or* 50 cavalry (in half sections), *or* one half battery of field artillery per minute.

PROPORTION OF THE THREE ARMS.

The normal proportion of the three arms is fixed in most European armies as follows. One cavalry soldier to every eight infantry, and three guns per thousand of the other two arms. Circumstances may however alter these figures. Should the country in the intended theatre of war be very mountainous or much wooded, the proportion of cavalry and artillery might be diminished, while that of infantry would be increased. In open or uncultivated country, the reverse would follow.

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Lecture VI.

ADVANCED GUARDS.

It is of paramount necessity that the commander of every body of troops moving within possible touching distance of the enemy, or in a hostile or unknown country, should:—

(1) Discover the whereabouts, strength, and intentions of the enemy.

(2) Veil the strength and movements and secure the safety of his own force, or protect it from surprise.

(3) Gain complete knowledge of the area of operations.

To achieve these objects most effectually, and that he may, without keeping his whole force in a constant state of tension and readiness, be able to choose when, where, and how he will form for battle, or whether he will decline to fight at all, certain dispositions must be made.

These dispositions consist in forming a portion of his force into covering bodies—Advanced Guard, Rear Guard, and Flank Guards. Each of these bodies assumes special importance according to the movement which is being executed. In a movement to the front the advanced guard and in a movement to the rear the rear guard, is of the first consideration, while in both cases the flank guards require careful attention.

In a flank march the covering body on the exposed flank becomes of the greatest consequence, but even then the advanced and rear guards' duties must not be neglected.

ADVANCED GUARD IN AN ADVANCE.

1. *Strength.*—Within certain limits the strength of the advanced guard will be regulated by circumstances.

It is not formed as an altogether independent body, for it does not act for itself, but only as an accessory of the force to which it belongs. Its strength, therefore, should only be such as will enable it to assist effectively in carrying out the objects of the general commanding in the field without committing him to any unintended action.

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When near the force it covers, within easy reach of support and assistance, it need not be strong. If it be a day's march or more from that force, it must be able to maintain unaided a more or less serious engagement, and should, therefore, be strengthened accordingly. The character of the enemy, and the probable nature of the intended operations, will also materially affect this point.

If the enemy is strong, fresh, active, and energetic, and has had no reverses, the advanced guard must be more powerful than is essential with a weak and unenterprising foe, or one which is in retreat, or has suffered serious loss; but, in all circumstances, it is more prudent to have an advanced guard too strong than too weak.

Its average strength should be about one-sixth of the whole force, but may frequently be increased to one-fourth or even more, and ought very rarely to be less than one-eighth.

2. *Composition.*—The composition of an advanced guard will depend upon the nature of its probable duties, and the character of the country through which it has to pass. In almost all fairly level countries the proportion of mounted troops with the advanced guard should be large; whenever possible, it should be composed of all arms.

When practicable, it is advisable that the advanced guard should be furnished from the body of troops which immediately follows it. For example, the advanced guard of a division should, if possible, be found by the leading brigade of the division. If the advanced guard comes into action with the enemy, its immediate support will then be the remainder of its own brigade.

The probable necessities arising out of the various duties to be performed, and the nature of the country, must determine the proportionate employment of the different arms.

If an advanced guard has to move over a generally open and level country, or to follow and keep touch with a retreating enemy, it must have greater mobility, and the mounted services should preponderate. In a close, intersected, or mountainous country, or when an unbeaten enemy is to be met who may offer stubborn resistance, a larger number of Infantry will be essential. But no country is so close and intersected that a proportion of mounted troops and machine guns are not indispensable with an advanced guard. However few in number, mounted-infantry are able to move well in advance, find out the enemy quickly,

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and as quickly transmit the news. Even if driven in, the small numbers which can carry out the duty will not throw the troops in rear into disorder.

With an advanced guard, mounted-infantry find a most congenial and important sphere of action. In the absence of Cavalry they will be employed in scouting, reconnoitring, and in far-reaching patrols.

Mounted-infantry, machine guns, and Artillery will be of great use in supporting the Cavalry movements, and in forcing the deployment of the enemy.

In rapid movements for a special operation, such as the seizure of an important position, bridge, or defile, mounted-infantry with machine guns will be invaluable to supplement the action of the slower moving Infantry.

Infantry will be required to seize and hold positions, out-flank defiles, and for like duties; while Engineers will be necessary for the repair of bridges and roads, for the removal of local obstructions, and to prepare means of passage over rivers and other obstacles.

When a force of either Cavalry or Infantry is moving alone, the advanced guard duties should be conducted on the same principles as if the force were a mixed one; and determination, intelligence, and resource must supplement the deficiency of varied power.

In detailing an advanced guard, complete units should, as far as possible, be employed, *i.e.*, troops, companies, battalions, regiments, and batteries. It is essential that, in carrying out a duty which requires the exercise of so many high qualities, officers and men should have been previously accustomed to work together, and should have mutual acquaintance and confidence.

The fewest possible number of non-combatants should be with all advanced and flank guards. Advanced guards should be lightly equipped with a view to rapidity of movement.

The strength and composition are given below of the advanced guards which would probably be furnished under ordinary conditions by—

(1) A division.
(2) A mixed brigade of all arms.
(3) A brigade of Infantry.
(4) A battalion of Infantry.

} Acting alone.

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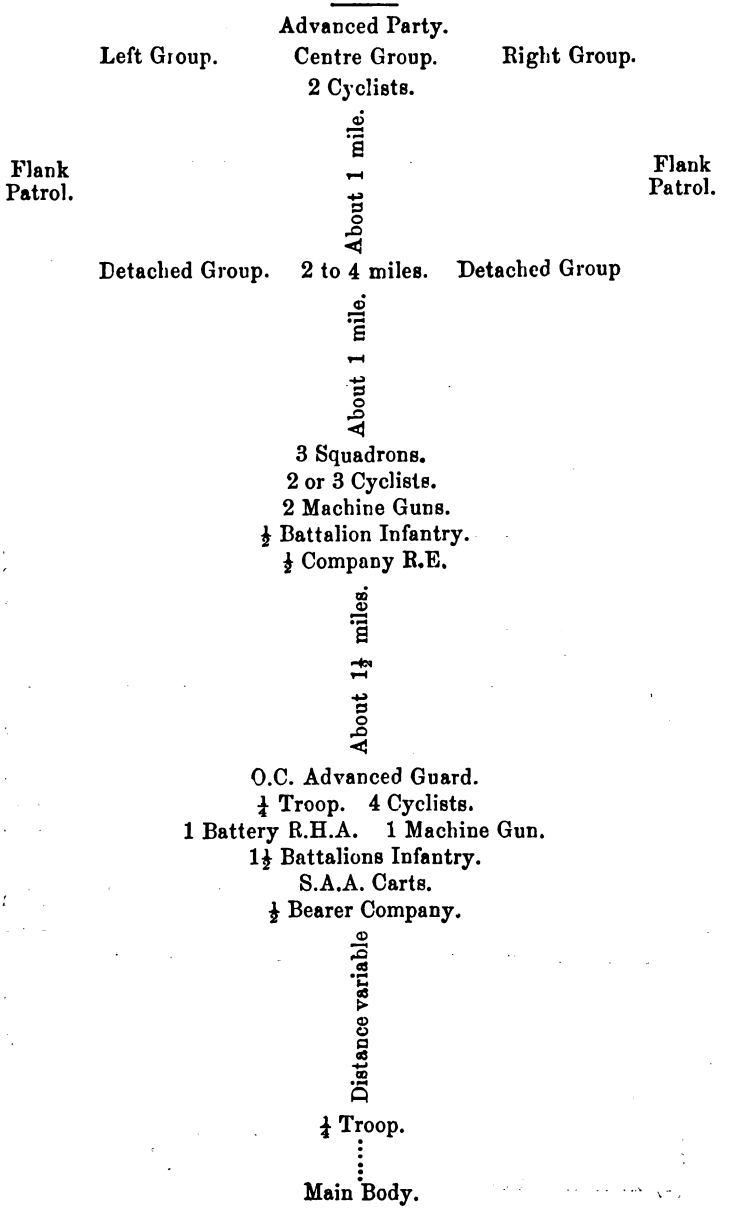
ADVANCED GUARD OF A DIVISION ACTING INDEPENDENTLY.



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For the advanced guard of a brigade or regiment of Cavalry, see "Cavalry Movements," Part v., s. 1.

A Division.	Advanced Guard.
Consisting of—	
1 Regiment Cavalry, and 1 machine gun.	3½ Squadrons Cavalry, and 1 machine gun.
Detachment of Mounted Infantry (100 men), and 1 machine gun.	The Detachment of Mounted Infantry, and its machine gun.
1 Co. R.E.	½ Co. R.E.
*3 Batteries Field Artillery.	1 Battery Artillery.
2 Brigades Infantry (8 Battalions), and 4 machine guns.	1 Battalion Infantry, and 1 machine gun.
Bearer Company.	½ Bearer Co.
1 Infantry and Artillery Reserve Ammunition Column.	Infantry Reserve Ammunition.
Departments and Staff.	
1 Troop Military Police.	

A Mixed Brigade.	Advanced Guard.
Consisting of—	
1 Regiment Cavalry, and 1 machine gun.	3½ Squadrons Cavalry, and 1 machine gun.
4 Battalions Infantry, and 2 machine guns.	½ Battalion Infantry, and 1 machine gun.
Detachment of Mounted Infantry, and 1 machine gun.	Detachment of Mounted Infantry, and 1 machine gun.
1 Battery R.H.A.	½ Battery R.H.A.
1 Battery R.A.	
1 Co. R.E.	½ Co. R.E.
Ammunition Column.	
Bearer Company, Departments, and Staff.	Section of Bearer Co.

A Brigade of Infantry.	Advanced Guard.
4 Battalions, and 2 machine guns.	4 Companies, and the 2 machine guns.
Bearer Company, Ammunition Column and Departments.	

A Battalion of Infantry.	Advanced Guard.
8 Companies with Regimental Transport.	1 or 2 Companies.

It may be laid down as a general rule, that with these advanced guards there will be all the available cyclists, mounted infantry, and mounted sappers, together with a large proportion of the machine guns, and, if the country is fairly open, all the Cavalry that can be spared.

* The Division when acting independently would most probably have Batteries of Artillery.

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3. *Disposition on the march.*—The advanced guard will generally be divided into two portions:—

(1) The *Van Guard*, including all the scouting troops and those which on an emergency will be first engaged with the enemy.

(2) The *Reserve*, which is intended to support the scouting troops when they are checked by the enemy.

With the exception of the men required to keep up communications with the force that is covered, the mounted men belonging to the advanced guard should, as a rule, be with the van guard. It will be their duty to explore as wide a front as is consistent with occupying and watching it so effectually, that no scouting body of the enemy may pass unseen or unopposed through the screen which they form.

In the case of the advanced guard of a division or any larger force, the van guard may also include a small proportion of Artillery, Infantry, and Engineers, who on the march, should be in the order here named.

It may be assumed that on the march one squadron of 100 mounted men will be able to thoroughly scout over a front of about two miles in an ordinary country; in a very open country over a front of double that extent; the extreme front that can be effectively covered and searched by an advanced guard may be thus fairly calculated according to the number of mounted men employed.

This screen of scouts will be from one-and-a-half to two miles in front of the rest of the van guard.

The van guard will keep up communication with its screen of scouts by means of signals, mounted men, or cyclists.

The reserve of the advanced guard will move at a distance of from about 1,000 to 3,300 yards from the van guard, headed by a small detachment of Cavalry to keep up communication with the van. Its column of route will be as a rule in this order: mounted troops, the artillery, machine guns, infantry, engineers, ammunition reserves, and ambulance. The order in which the different arms in the reserve should follow on the line of march is determined by the probable necessity for their employment.

Mounted Infantry, will, in future, probably form a part of every force in the field; it should move with the van guard, and may be usefully employed in detached scouting and patrol duties, thereby allowing the Cavalry to be reserved for combined action with the other arms. It is very desirable to have a formed body of Cavalry with the advanced guard always ready to charge.

Machine guns will find their most important use with advanced guards or detached forces, and will aid materially in holding all positions, bridges, defiles, &c., seized by them, when the movements of ordinary Infantry would be too slow for the emergency. Machine guns should therefore, be so placed in the advanced guard as to be always ready for action with the smallest delay.

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The flanks of the advanced guard must in all circumstances be covered and protected by special flank guards and patrols, composed as a rule of mounted men.

The distances between the various portions of the advanced guard (advanced scouts, van guard, and reserve), and between the advanced guard and the force which it covers, depend upon greatly varying circumstances. In a comparatively open country the scouts can extend over a much wider front, and the distances generally may be much greater than can be the case in a close and intersected district, where observation is difficult and communication is cramped and impeded.

It may be accepted as a general rule for guidance that the advanced scouts (although they are not necessarily to confine themselves to such limits) should be so far ahead of the reserve of the advanced guard that effective artillery fire cannot be opened upon it by the enemy without its having time to form for action.

The whole advanced guard should be at such a distance from the force which it covers, that, if the enemy is met in strength, the action of the advanced guard will secure ample time to the general commanding to decide whether he will accept battle or not, and to form his force accordingly.

At the same time the advanced guard must not be so far from the main body as to incur the risk of being cut off by an enterprising enemy, before it can be supported or enabled to withdraw.

The actual route formation of the troops of an advanced guard should be such that the force is able to change to a fighting formation without delay or interruption.

If roads are close and parallel, it may be divided into two or more small columns, but, unless in the case of advanced guards with large armies, it is, in most circumstances, better that it should remain on one road, the other roads being watched by patrols. Advantage should, however, be always taken of favourable ground on either side of the main route, which will enable any of the troops, without extra fatigue, to move on a wider front.

4. *Duties of the Advanced Guard.*—It has been said that the commander of a force on the move depends upon his advanced guard to discover the position and doings of the enemy, to screen his own movements, and to gain every knowledge of the theatre of operations. In order to perform these duties satisfactorily, not only must the whole area through which the main body has to pass be thoroughly reconnoitred, but also as much of the country as possible to the left and right of it. All obstructions must be removed which might impede the main body.

In a mixed force the scouts and all advanced parties will be furnished by the mounted troops. The rules for their action are laid down in the "Cavalry Movements."

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If Infantry are ever obliged, by the nature of the country or the deficiency of mounted men, to perform these duties, they will be guided by instructions laid down for Skirmishing.

The real work of the advanced guard will be done in a great measure by its scouts and patrols, and any inefficiency or faulty arrangements in the performance of their duty may render the whole advanced guard of practically little use.

If possible, every patrol that has to examine a village, or any important position which might give concealment to an enemy, or which has to make a special reconnaissance of an enemy after contact has been established, should be accompanied by an officer. Every man of every patrol or scouting group, and the leading files of advanced guards, should thoroughly understand the use of signals for communicating the presence of an enemy and other important information, and should also know the chain of connection by which information can be most rapidly passed.

It cannot be too often or too emphatically impressed upon all patrols and scouting groups, that negative information, *i.e.*, information of the non-existence of any enemy or obstacle in the district or on any road, may be, and very often is, as valuable as the positive information of the presence of an enemy or the existence of an obstacle; and this negative information should be constantly rendered accordingly.

One important means of collecting information and of keeping it back from the enemy, is to rapidly seize all post and telegraph offices, and secure the correspondence, and also, if the enemy has recently left the neighbourhood, the postmaster and the telegraph clerk. The correspondence will be examined, and the postmaster and the telegraph clerk will be questioned, if possible, by an officer of the intelligence department, or some person detailed for the duty; if there is no such person present, the offices should be placed under a guard, and the postmaster and the telegraph clerk should be detained till the arrival of the main body. If circumstances do not permit of this, the most important part of the correspondence should be carried off, viz., originals of telegrams sent, letters in the letter-box, and letters recently received. It may be necessary sometimes to leave the careful examination of this correspondence to persons detailed for the particular duty, but it is certain that no letter or telegraphic despatch should ever be forwarded to the enemy from any office after the time of the first arrival of the weakest scouting party which is unopposed by armed force.

The removal of obstacles will be the special duty of the Engineers attached to the advanced guard, aided by the Cavalry pioneers. The latter may, indeed, in many cases, have to undertake work of this nature without Engineer assistance.

If large bodies of the enemy are seen, they must be cautiously engaged, both with a view to make them show their force and intentions, and to give the general commanding time to form for

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battle, if he means to fight; or if he does not, to withdraw without actively compromising himself.

If small detachments of hostile troops are encountered, they must on no account be allowed to advance so far that they can procure information, but, in driving them back, it is advisable that they should be only seriously attacked in advantageous circumstances or by a superior force. With an army on the march supports are always advancing, and an advanced party, as a rule, loses little or nothing by waiting till the work can be done easily with every advantage, instead of engaging in even an equal combat.

When the enemy is found in position, he should be made to show his strength, and if it be apparent that he can be forced from it without the direct help of the main body, the advanced guard should attack him with all vigour, and drive him off. But the commander of an advanced guard must be careful that he is not drawn into a task beyond his strength, which may commit the general commanding to a serious action in order to extricate him. In such a case, it is the duty of the advanced guard, pending the arrival of instructions, to fight a temporising action, only engaging to such an extent that the enemy cannot withdraw and must show his strength. The employment of Artillery, and perhaps machine guns, will probably be the best means of securing this result and of gaining the necessary time.

An advanced guard in pursuit of an enemy, or when it expects to meet him, should make every exertion to secure important positions, such as bridges, defiles, or magazines along the line of march. The retreating enemy must not be allowed to establish himself in defence, and an advancing enemy should be forestalled in possession of such positions.

Due precautions should be taken against surprise before an advanced guard commits itself to the passage of any position capable of affording concealment to the enemy, or which might impede its own free movement for fighting purposes. Defiles, passes, woods, towns, villages, should, if possible, have their flanks turned and examined before they are directly entered. In passing a defile this is effected by crowning the heights enclosing it. The outskirts of towns and villages should be examined by scouting groups, and in woods of great extent all cross roads and bye-paths for a considerable distance on both flanks must be specially and carefully examined and watched.

In order to carry out these precautions, it may frequently be necessary to strengthen the numbers employed in scouting groups and patrols, and sometimes to halt the main body of the advanced guard till preventive measures are complete. In the latter case, the halt should be made in a place which is not exposed to fire from any position that may be occupied by the enemy.

If a halt be made on the line of march, the advanced guard must at once be disposed so as to shield the force which it covers

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by a system of outposts, advantage being taken of every commanding point which gives an exceptionally good look-out. The reserve of the advanced guard must occupy the nearest good military position, and for this purpose its commander should not hesitate to increase or diminish in a moderate degree his distance from the main body, nor fail to report at once what are his dispositions. No important position which has been once seized should be evacuated until the subsequent occupation of it by the main body is secure.

Delays enforced upon an advanced guard should, when practicable, be compensated by a temporary increase of pace. All halts involve corresponding checks in rear, and may, therefore, derange, perhaps materially, the plans of the general in command.

Advanced and flanking guards should press forward to occupy the enemy's end of defiles and like positions as rapidly as possible, so as quickly to clear the route and allow for the secure passage of heavy and encumbered columns.

5. *The Commander of the Advanced Guard.*—The duties of the commander of the advanced guard have necessarily been in a great measure detailed above. He should be in the confidence of the general commanding the main body, whose views and plans he can then forward in the most effective manner. Left with the power of complete initiative, he must only exercise it in the strictest subordination to the general plan and intention of the commander-in-chief.

He must take care that all duties are conducted according to the regulated chain of responsibility. Although he cannot himself superintend the execution of every detail, his influence should be felt to such an extent that he can rest satisfied his instructions are fully understood by his subordinates, and that all fully and clearly realise what is expected of them.

His position should, as a rule, be at the head of the reserve, but he may frequently find it necessary to be with the van guard, so that, if anything of importance is communicated by the scouts, he may personally attend to the emergency and decide on the best course to pursue.

The movements of scouts and patrols, and to a great extent those of the van guard, though carried out on the initiative of subordinates, must be in general accord with his instructions. The reserve should not, however, act except on orders given by him to suit the varying necessities of the moment.

Finally, he should ensure that all information is well sifted and collated before he sends it to the general commanding, and that his reports are as clear and specific as circumstances will admit, facts being clearly distinguished from suppositions, even should they have apparently the best foundation. In wars in civilized countries these reports can often be telegraphed to the rear, a line being either laid or repaired as the reserve of the advanced guard advances.

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6. *Maintenance of Connection.*—It is even more necessary to an advanced guard than to any other body of troops that complete connection should be maintained throughout every one of its portions. Men should be told off as connecting links between the various bodies to repeat signals, to pass orders, and to take care that every movement or stoppage in front or rear is at once notified in the opposite direction.

In foggy weather, and in a very close and intricate country, it will often be necessary to leave men at cross roads and on doubtful tracks, to make certain that the proper route is followed by the rearmost portions of the force. Above all, when any scouting groups are pushed forward to an unusual distance for a special purpose, they should establish one or more connecting posts at places which are distinctly marked on the map and are easy to find, so that reports may be transmitted as rapidly as possible.

Intermediate communication from flank to flank should also be carefully kept up. It may easily happen that one extremity of the screen of scouts may encounter the enemy without attracting the attention of the remainder: to prevent this, intermediate patrols, signallers, and connecting files should be employed.

Good signallers should accompany the advanced guard; much time and expenditure of orderlies will be saved, if they can establish stations for the transmission of intelligence. During the march it may be difficult of accomplishment, but as soon as a halt is made, and especially if an encounter with the enemy is commenced, every exertion should be made by the signallers of the advanced guard to open communication with those in rear.

The advanced guards of a large force, which is pushed forward to a considerable distance from the army to be covered, will usually be accompanied by telegraph equipment to keep up momentary communication with the commander-in-chief.

For the rapid transmission of orders and information between the component parts of the advanced guard, and between it and the main body, cyclists will be of great value.

The smallest possible number of carriages should be taken for the conveyance of indispensable stores, medical supplies, and ambulance. Tents will never be taken.

It is only with large advanced guards, pushed a day's march or more ahead of the army, that the Artillery ammunition wagons should accompany the batteries. Reserve ammunition and the tools of the Engineers should be, as far as possible, carried on pack mules or horses. To save the advanced guard from unnecessary discomfort, all its heavier equipment and baggage should move together at the head of the baggage of the main body.

As it will frequently be impossible to say where their halting place for the night may be, and what may be the dispositions, the men of all advanced and flank guards should always carry

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in their haversacks one day's rations, and the horses should carry one day's corn. Unless the country has been ravaged by the enemy, the advanced guard should have no difficulty in living upon the supplies it affords. The commissary with it should be furnished with money of the country for this purpose.

ADVANCED GUARD IN A RETREAT.

During a retreat the importance of the advanced guard diminishes considerably, though many of its duties still remain unaltered and must be carried out with care and attention.

The movements of the enemy will be watched and counteracted by the rear guard, but the reconnaissance of the country with a view to facilitate the passage of the army, or the selection of a position in which to accept battle, still remains the function of the advanced guard.

So wide a front need not be covered by the advanced guard in a retreat as during an advance. As a general rule, only the ground which will subsequently be traversed by the main body need be occupied and examined.

As great mobility is not so much required, the services of many mounted troops will not be necessary; during a retreat their presence with the rear guard is essential, but if a few mounted men can be spared for the advanced guard, they will save the Infantry fatigue.

All the Engineers not required with the rear guard to break down bridges, destroy roads, and create obstacles to delay the enemy's pursuit will be most useful with the advanced guard to prepare the roads, repair bridges, &c. In any case a liberal supply of engineer tools should be always at hand.

When a force is moving in several columns by a number of parallel roads, the necessities of advanced guard duty will be met in the most effective way by allowing each column to furnish its own small advanced guard; but if this is done all these small advanced guards should be in constant communication with each other.

Generally speaking, every order and regulation which applies to an advanced guard in an advance, applies equally to the conduct of the smaller body which will form the advanced guard in a retreat.

FLANK GUARDS.

With small bodies of troops on the march, the flank guards will only be patrols or groups of scouts detached from the advanced and rear guards, to complete the circle of watchfulness.

For a large body of troops special arrangements must be made The detachments acting on each flank will be separate bodies, following the same general rules as advanced and rear

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guards, varying in strength according to the distance which they have to cover, and the probability of the flank attacks they may have to resist.

As in all other detached duties, mounted men will usually be employed, but when there is any probability of attack they may have to be supported by the other arms.

The interval between the flank guards and the main body must depend upon the amount of notice required by the main body to prepare for an attack. The nature of the country enters largely into this consideration

If a flank movement has to be executed, the advanced or rear guard, as the case may be, whichever is next the enemy, will become a flank guard until the movement is completed, and in such a case, another advanced or rear guard, sufficient for the duties which will devolve upon it, must be at once detailed and take its place.

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Lecture VII.

REAR GUARDS.

If it is necessary for an advancing army to keep the enemy at a distance from the main column in order to give it time to prepare; how much more is such precaution required for a beaten and disorganised army? But the difference between the two duties is immense. An Advanced Guard on touching the enemy can either halt or advance to attack. Should it be repulsed or outflanked, every moment brings up fresh troops to support it, while any attempt to outflank it can be seen and forestalled by troops in rear. An Advanced Guard can generally observe the normal formation, and in short, it has a comparatively easy task.

On the other hand, a Rear Guard labours under almost every conceivable disadvantage. It may be attacked at any moment, and no matter under what disadvantages of time and place, it must make at least a show of resistance. The commander can seldom if ever make a counter attack or even a prolonged defence, because every moment separates him further from his retreating army, nor can he ask for reinforcements, for in all probability none will be available.

A beaten army is no longer in the hands of its general. It no longer responds to his appeal. The troops that have been driven from the field will be slow to form front for battle; confusion too will be added to despondency, for regiments will be broken and mixed, artillery will be separated from its ammunition, supply trains will be thrown into disorder, and the whole machine will be for the time disjointed.

COMPOSITION.

Hamley. It is partly to provide for this that generals usually keep part of their reserves out of action.

Rear Guards told off to cover the retreat of a beaten army should be formed from the reserves or at least from the freshest troops; their strength should be one fourth or one fifth of the whole force.

One fourth or one fifth may appear a very small proportion to allot for this duty, but it must not be supposed that the victorious army will at once pursue with its whole force. On the contrary experience shows that it also is generally disorganised and more or less exhausted after the battle. The victorious general may detach only a portion of his army in pursuit, having other designs for the remainder. Troops must be detailed and formed up for pursuit, darkness has probably set in, and the

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track of the beaten army may be lost. Military history abounds with instances of victories more or less thrown away owing to feeble pursuit, arising from one or more of the above causes; in fact, vigorous immediate pursuit is rather the exception than otherwise.

On the evening of the 4th of August all contact with the foe defeated at Weissenburg, was lost. — German Official Account.

Again, after the battle of Wörth—

The pursuit instituted by the cavalry was discontinued at the entrances to the difficult mountain passes, and thus all contact with the enemy had ceased to exist. — Ibid.

Again, after the battle of Spicheren—

The darkness of the night and the generally unfavourable nature of the ground on the Spicheren plateau, did not render it advisable to send large bodies of cavalry in pursuit of the enemy who was retreating in good order. — Ibid.

NOTE.—Perhaps the two most effective pursuits recorded in history are the French pursuit of the Prussians after Jena, and the Prussian pursuit of the French after Waterloo.

Like an Advanced Guard a Rear Guard should be a miniature army. The pursuers will send forward their swiftest moving arms, cavalry, and horse artillery, which must be met by corresponding arms on the retreating side. The pursuer's infantry will certainly follow, and therefore as cavalry and artillery have little defensive power, a Rear Guard must consist of the three arms. A party of sappers should also be attached to it for purposes of demolition.

As the advanced guard in an advance, so the rear guard during a retreat is the most important of the forces which covers an army or any body of troops in the field. Rear guards are of two kinds, according as the main body is advancing or retreating.

REAR GUARD IN A RETREAT.

1. The difference between the duties of an advanced guard and those of a rear guard is that the former has to reconnoitre, and fights to hold its ground till supports come up, whereas the latter has no reconnaissance duties, and fights in order that it may fall back.

The rules for the guidance and disposition of a rear guard are, in principle, the same as those for an advanced guard in a reversed order; the body that would correspond with the van is not, however, required. Its principal object is to retard the enemy, prevent him from attacking or harassing the march of the main body, and stealing round and gaining the flanks.

2. *Strength.*—Its strength, like that of an advanced guard, must depend upon circumstances. When the ground offers many facilities for defence, and when the enemy is weak, especially in Cavalry, and lacks energy and enterprise, a less

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strong rear guard will suffice than would be required in an open country, unfavourable for defence, and when the enemy presses on boldly and with determination.

As a rule it should be the same strength as an advanced guard of an advancing force; but in particular circumstances, as when it is covering a retreating and beaten force against energetic pursuit, the strength may be increased to one-third of the force from which it is detached.

3. *Composition.*—A rear guard should be composed of the best and freshest troops, and, above all, of those whose soldier-like spirit is least disturbed. All arms will be required, but particularly Cavalry and mounted Infantry, as mounted troops will probably be the chief arm employed by the enemy in pursuit. Horse Artillery and machine guns will be of the highest utility for checking and delaying advancing columns, by forcing them to deploy. Mounted troops have the great advantage of being able to retire quickly from a position held to the last, without serious danger of being cut off. At the same time, although mounted troops are invaluable in an ordinary country, good Infantry finds its place, where natural positions (such as rivers, defiles, &c.) enable an effective stand to be made. Machine guns in many situations will well supplement a deficiency of Infantry.

4. *Disposition.*—If a sufficient screen of mounted patrols and scouts, with properly disposed supports, covers a wide extent of country, the whole of the remainder of the rear guard may move together, either in one column or in more than one when near and parallel routes exist which can be utilized without losing the cohesion of the force.

The order of march for the troops of the rear guard will be: the whole of the mounted men with their machine guns cover the extreme rear, the Artillery move next, and then the Infantry still nearer to the main body, as it requires most time to establish itself in defensive positions.

A pursuing enemy will do his utmost to out-flank the rear guard. It is not likely he will be able to pass the extreme flank of the rear scouts unnoticed, but their weak line may easily be driven in by pursuing cavalry, and the reserve of the rear guard and possibly the main body may be thus exposed to danger. The flanks must therefore generally be strengthened, and when there are roads parallel to the principal route along which an enemy could advance, it may be advisable to have on them separate but completely constituted, if smaller, rear guards. Sufficient resistance to an outflanking movement until help can be rendered may thus be provided for.

As a protection against flank attacks, the most careful communication should be maintained throughout every portion of the rear guard, and especially from the flanks to the centre.

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5. *Duties of Rear Guard.*—The duty of a rear guard is to manœuvre, but not to begin an actual contest, unless with some definite object, such as the defence of a position for the purpose of gaining time.

Except for some undoubted benefit, no position is to be held so long that the force in occupation of it runs the risk of being cut off. The first object of the rear guard is to prevent the enemy from closing with the main body, and to protect it from being harassed. This can be often accomplished by forcing the enemy into frequent deployments and then retiring the rear guard to another position. To deploy and then reform column of route, takes time, and it is time of which the retreating force stand most in need.

The enemy's march should be impeded by every possible expedient; by breaking up roads, demolishing bridges, forming obstacles, and ruining supplies. In a close country, to leave a burning village behind often serves to check a pursuing enemy, but this measure and the destruction of railways should not be resorted to except under urgent necessity or in obedience to superior orders. To burn hay ricks, fire the grass in countries where that is possible, and destroy all corn, cannot fail to retard a Cavalry pursuit.

In retiring from a position the troops should not all move at once, but by echelons, the slower-moving arms first; such a movement should be concealed as long as possible by the brisker fire and the greater activity of those which remain the latest.

Frequently it may happen that opportunity is offered of making a counter attack, and partially assuming the offensive. This may sometimes be necessary to disengage the tail of the column, or to check a too close pursuit. When this has to be done it must be executed with promptitude and vigour, but the commander of the rear guard must be careful that his force is not led too far from the main body, and that pursuit is on no account attempted. Every hour the rear guard is halted the enemy's force increases in strength, whilst the rear guard becomes further removed from the main body, and consequently from all support. The commander must, therefore, take care not to compromise the safety of the rear guard in carrying out his primary mission of retarding the enemy.

The position of the commander of the rear guard should be with the main body of his force, and he should be in constant and close communication with the screen of mounted men covering the extreme rear.

Above all, the duty of the commander and each officer of a rear guard is to do his utmost to maintain the courage, daring, and martial spirit of the men, and for this the highest qualities of a soldier will be required.

6. *Equipment.*—The equipment of a rear guard should be even lighter than that of an advanced guard. Nothing should

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accompany it which may have to be left behind in a rapid movement. No reserve supplies of ammunition or food need be carried. In most cases arrangements can be made that the main body on its march daily drops everything required by the rear guard. Men and horses should carry with them one day's supply of food and corn.

The ambulance must accompany a rear guard, but if all other transport is dispensed with or reduced to a minimum, the sick and wounded should be little encumbrance to the free movement of the rear guard.

REAR GUARD IN AN ADVANCE.

This is one of the most distasteful and toilsome duties that devolves upon troops in the field; it therefore demands the exercise of some of the best qualities of a soldier.

The rear guard in an advance will be a small force left behind mainly for police purposes; to hinder men from straggling from the main body, bring up those who have fallen behind for any reason, and prevent plunder and misconduct. In an enemy's country it will have also to guard against any attacks on the baggage and train by armed inhabitants or small irregular forces.

It will generally be composed of Infantry, with just enough mounted men to scout well to the flanks and to communicate with the main body in front. The bulk of the mounted police should be with it. Unlike a rear guard covering a retreat, it is not necessary to employ whole battalions on this service. Companies from different battalions of the main body should be detailed, so that when the halt for the night is made, these companies, upon reaching the halting-place and rejoining their head-quarters, will find everything prepared for their comfort by the other companies of their battalions. Complete battalions that reach their halting-place very late—night has often far advanced before they can get to the front—have difficulty in cooking and in preparing for a night's rest.

Rear guards can as a rule be conveniently formed from the piquets or outposts that were on duty when the march began. Having been up all the previous night they will thus have some hours for rest and cooking before it comes to their turn to march, all the force with its baggage trains, &c., having first to move off.

The general disposition of the force on the march will be the same as that of the rear guard covering a retreat, the flanks being guarded so that no unexpected minor attack can be made on the baggage.

It should move as near the rear of the baggage train as will ensure that everyone and every cart, &c., is in front of it, and that no irregularity can take place.

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Lecture VIII.

OUTPOSTS.

GENERAL PRINCIPLES.

Objects of Outposts.—Every body of troops in the field is dependent for security upon its outposts.

These outposts consist of detachments, sent out to cover the front and flanks and sometimes the rear in order to—

(i) Obtain accurate intelligence of the position, strength, movements and intentions of the enemy.

(ii) Prevent his obtaining information on these points.

(iii) Protect the main body from surprise, by checking any advance of the enemy until preparations are made to receive him.

Tactical Division.—These objects are attained by dividing the force detailed for outpost duty into fractions, which radiate from the main body in the direction of the enemy, in gradually decreasing numbers; and, while prying into the affairs of their adversary, form an impenetrable veil to the troops they cover.

The principle upon which the actual outpost duty is conducted, is, that a fraction of the outposts should be constantly in a state of observation and watchfulness, while the remainder are in readiness to afford the advanced fraction immediate support, or offer any resistance necessary. On this basis the outposts are divided into—

Reserves.
Support.
Piquets

"Strong Patrols" are usually supplied from the Reserve, and piquets furnish—

i. Sentries.
ii. Reliefs.
ii. Rounds.
iv. Detached posts.
v. Examining posts.
iv. Visiting and reconnoitring patrols

Units to be intact.—In outposts and the parts into which they are subdivided units should as far as possible be kept intact. The reserve should be a brigade, battalion, or half-battalion, and the supports and piquets should be composed of companies or half-companies.

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DISTANCES BETWEEN THE OUTPOST LINES.—As a principle, outposts should be pushed as far forward as is compatible with safety. The distances separating the various lines being so fixed, that each affords such support to the other as will enable the troops to defend the outpost position so effectually, that the force they cover stands in no danger of being surprised.

MUTUAL SUPPORT.—It will depend upon circumstances whether, when the outposts are attacked, reinforcements are to be pushed forward; or whether each line in succession is gradually to fall back upon the troops supporting it, and there make a stand; or retire still further towards the main body. Orders on this subject will be issued by the General or other senior officer charged with the command of the outposts.

WHEN TO RETIRE.—Outposts should hold their ground as long as possible, and must bear in mind, that if they remain firm, their numbers will be greatly exaggerated, especially at night or in the early morning before things at a distance can be clearly seen, and the progress of the adversary consequently retarded. Generally speaking, troops on outpost duty need not retire until their flanks are turned, and it is an axiom on this service that the smallest fractions must, when necessary, sacrifice themselves to protect the larger.

The portions of troops retiring will, when practicable, draw off to a flank, so as to give a clear front for the fire of the next supporting body.

INTELLIGENCE TO BE CIRCULATED.—Detachments of the outposts are, by means of patrols, mounted orderlies or sentries, supplemented when feasible by a system of telegraphic and visual signalling, to keep each other mutually informed on all matters respecting the enemy, as well as of their own movements.

POSITIONS ARTIFICIALLY STRENGTHENED.—When an army encamps for any length of time in one place, the position taken by the outposts or at least certain portions of it, should be strengthened by abattis, entanglements, redoubts; by fortifying farm-houses, barricading villages, bridges and defiles, loopholing walls; and by rendering every approach to the camp as difficult as possible. These measures are only to be adopted under the orders of officers in superior command.

If the force halts for more than a few hours, free lateral communication between the component parts of outposts is invariably to be secured; so as to enable all, in case of attack, to act in the most complete concert one with the other. For this purpose passages should be made through enclosures, hedges and brushwood cut down, ditches filled in; and the nearest line of retreat from one post to another marked out by felled trees, straw placed on poles, or by other means.

As nothing checks the ardour of an attack more than an unexpected obstacle within a moderate distance of the objective, every impediment is to be thrown in the way of an enemy's advance, in front of the ground where it has been decided to make the first stand.

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In order to enable the outposts to resist the enemy's onset successfully, the front of attack is to be narrowed, by blocking up roads, defiles, bridges, and all avenues of approach not required by the army itself.

NIGHT DISPOSITIONS.—Unless for some special reason, outposts at night are not to be brought nearer the main body; but in order to secure additional protection, patrols will be pushed well ahead, on the routes by which the enemy must advance to occupy roads, bridges, high ground and villages. When it is requisite to make certain modifications in the dispositions of the outposts for night, or in foggy weather, the alterations will be arranged during the daylight; but in order to conceal them from the enemy, the changes will not be carried out till dusk.

UNDER ARMS AT DAWN.—Outposts will be under arms an hour before daylight, when, if everything is quiet in front, the positions taken up by day will be resumed.

HOUR FOR RELIEF.—When the force remains stationary, outposts are relieved at daybreak, so as to have the stronger force at hand at an hour when attacks are generally made.

On being relieved, officers commanding any portions of the outposts will accompany the officers who relieve them round the limits of their command, explaining the situation, and affording every information in their power.

NO COMPLIMENTS.—No compliments are paid by troops on outpost duty. If a superior officer visits the various detachments the men take no notice of him unless he addresses them. When the officer commanding the outposts approaches, the outposts will only stand to their arms if ordered to do so.

THE RESERVE.

The reserve is the main body and head-quarters of the troops detailed for outpost duty, and may be considered a general support to the two front lines of supports and piquets.

It should be placed in the most advantageous position for defence, if a stand is to be made there; but, if the ground occupied by the supports is to be held, then the reserves will be so placed as to be readily moved to any quarter threatened. It must be sufficiently advanced to prevent the camp or bivouac being shelled by the enemy.

The distance of the reserve from the main body is approximately from one to two miles.

Occasionally it may be advisable to divide the reserve into two parts, when, for instance there are two bridges, or two defiles or roads by which piquets and supports would have to fall back if driven in.

Its strength depends so much upon circumstances such as the distance of the outposts from the main body, and the nature of the ground, that it is impossible to fix it by any general rule. It will vary from $\frac{1}{3}$ to $\frac{1}{2}$ of the force detailed for outpost duty.

When the main body of the army bivouacs in a defensive

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position, and could within a very short time be formed up to resist attack, reserves may at times be dispensed with.

The reserve should always bivouac out of sight of the enemy.

SUPPORTS.

The support consist of one or more companies of the same battalion that furnishes the piquets. It is not necessary to have a separate support to each piquet; on the contrary, there should only be one to each group of two or three piquets, but it will be about equal in strength to the aggregate of the piquets to which it is linked.

Supports are placed wherever the ground affords the best general line for mutual defence. A protracted resistance by a portion of the supports, while another portion was forced to retire would probably result in the capture of the force which held its ground. Positions which present moderately good opportunities of defence throughout, are much to be preferred to the line which possesses some strong features, but is untenable elsewhere.

The distance of the supports from the reserve is approximately from 400 to 800 yards.

If properly posted, the supports should be able to check the advance of a considerable body of mounted troops, and thus prevent any reconnaissance being made by even a strong force of the enemy.

They should keep up communication with their piquets, with the supports right and left, and with the reserve.

The circumstances of the moment alone can enable a decision to be arrived at in the event of attack; whether the supports reinforce the piquet or wait, and with them hold the position originally occupied by the supports, or together with them and the other supports retire upon the reserve. This must be decided by the officer in command of the outposts, in accordance with the intention of the General Officer Commanding the Army, which would be communicated to him from day to day.

PIQUETS.

The piquet furnishes the sentries required, and supports them if attacked. It also supplies the visiting and reconnoitring patrols, and, when necessary, the detached posts and the examining party.

Its best position is in rear of the centre of the sentries it furnishes, not so far from them that they would run the risk of being overpowered before the piquet could help them, or so close on them that an attack would fall almost simultaneously on sentries and piquets. It should be on a road or path if possible with clear ground for action in front, and on the flanks; its position should be easy for the troops in the rear to find, but concealed from the view of the enemy.

The distance of the piquet from the support is approximately from 400 to 800 yards.

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A piquet should never occupy a house; when unavoidably posted in a cramped locality, obstacles should be constructed a little distance in front. Bridges, defiles, and causeways should as a rule be left outside the line of piquets.

The piquet must not take up a position with the intention of defending it to the last, unless ordered to do so; or unless, while awaiting the arrival of supports, such a measure is unavoidable for the preservation of the party.

In case of alarm, the piquet at once falls in; if the enemy is close at hand, and active; or should there be reason to apprehend an attack, a portion of the piquet is kept constantly under arms during the night. This party, ready for immediate action, is kept distinct from the remainder, to guard against the confusion that might otherwise arise from a sudden attack.

A single sentry is placed over the piquet, in such a position that, while protecting the arms, he can see the sentries in front, or the files connecting them with the piquet. He stands still, and is continually on the watch for any signal from the line of sentries.

As attacks are often made at or about daybreak, a desirable reinforcement will always be obtained by relieving the piquets and supports at that hour. When the new piquet has arrived, the officer commanding the old piquets will accompany the officer commanding the former along the chain of posts, and will point out the situation and strength of the enemy's posts, and afford every information in his power.

When the posts have been relieved, if everything appears quiet and the weather is sufficiently clear, the old piquet will fall back upon the support and march into camp.

Should firing be heard in front before it reaches the camp the commander will instantly return to the front.

Sentries.—Sentries are, according to the features of ground, placed in pairs or groups.

In the former case, the reliefs of each double sentry are with the piquet; where they have more shelter and rest. In the latter case, the remainder of the group lie down as close as they can to the sentry without being visible to the enemy.

Groups may consist of three, four, six or more men, a non-commissioned officer is placed in charge of from one to three groups.

Besides saving the fatigue which is incurred when double sentries are relieved from the piquet, the group system is more economical; it leaves comrades together, and gives the sentries confidence from having succour so close to them.

Where groups are used, a single sentry generally suffices by day; but at night when the strain on a man's nerves renders it desirable that he should have a companion, the sentries are double.

Reliefs.—The reliefs are calculated on the principle that the sentries remain on their posts for two hours, unless in very severe weather or under exceptional circumstances, when they may be relieved hourly. The reliefs are kept separated by a few yards from the remainder of the piquet, to avoid disturbing them.

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ROUNDS.—An officer, or non-commissioned officer, and a private go round once between reliefs, to ascertain, if the sentries are on the alert, and whether they have anything to report or suggest, also to keep up communication with the neighbouring piquets. Hollows, or places capable of affording concealment to small parties of the enemy who may have crept in between the sentry posts, are examined closely.

Rounds do not go in front of the sentries, nor pass in view of the enemy. They should sometimes go from right to left, and sometimes from left to right.

DETACHED POSTS.—Detached posts consist of from three to twelve men, under an officer or non-commissioned officer, and form a piquet on a small scale. When in front or rear of the extreme flank of the line, such posts are usually placed in echelon to watch some particular place or road by which the flank, from its not resting on a natural obstacle, could be turned; or to watch a village lying in front of the line of sentries, where an enemy might collect preparatory to an attack; or to guard any elevated spot from which the enemy could overlook the outposts, and the position of the main body. These posts are sometimes placed to maintain communication between piquets lying unusually far apart.

EXAMINING POST.—When ordered to establish an examining post, the officer commanding the piquet will detail an officer, or selected non-commissioned officer, to command it, who should, if possible, speak the language of the country. The party will consist of not less than six men, and their orders are to allow no person other than those on duty with the outposts, to pass anywhere except at this post.

The examining party are under the orders of the officer commanding the piquet from which they are detached, and, according to his instructions, the officer, or non-commissioned officer in charge, examines every individual wishing to pass inwards or outwards, and gives or with-holds the necessary permission.

In the absence of an examining post, the officer commanding the piquet will issue orders to prevent any unauthorised person passing to or from the front.

PATROLS.—Without patrolling, however active and alert the sentries may be, the service of the outposts can never be properly performed.

Vigilance, silence, and circumspection must be strictly enjoined on all patrols. No noise on any account must be made. Patrols should be especially careful to prevent their arms and accoutrements rattling, or anything about them glittering.

Instances may occur, when the front of an outpost can be watched by patrols better than by sentries. In cases of this kind, patrols must be incessantly on the move in front of the line, and must communicate with each other.

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When the officer commanding a piquet accompanies a patrol, he is to inform the next in command of his intended absence,, and the probable time of his return.

A patrol not accompanied by an officer commanding a piquet, will receive instructions from him, and will report to him on its return.

The mode of conducting patrols, their number, strength, and the distance to which they may be sent, necessarily depend on the ever-varying local and other circumstances in which the piquets may find themselves.

Patrols may be classed under three headings:—

(*a*) Visiting patrols.
(*b*) Reconnoitring patrols.
(*c*) Strong patrols.

Visiting Patrols.—Visiting patrols usually consist of an officer or non-commissioned officer and one or two men; they are sent at intervals, as a rule between reliefs, along the front, in order to ascertain that the sentries are alert, whether they have anything unusual to report, or whether they require assistance to examine doubtful objects. This party, on leaving the piquet, communicate when feasible with the sentries of the piquets on their right and left, and then move along the front of the line of sentries, beginning at one flank, and returning by the other.

All woods, ravines, or broken ground in the immediate neighbourhood of the sentries, where bodies of the enemy could collect without being detected, are occasionally visited by these patrols; also the posts of groups and their sentries, and of all sentries in foggy weather.

Reconnoitring patrols.—Reconnoitring patrols of from three to seven men move in the direction of the enemy to such a distance as may be deemed expedient. Mounted troops are usually detailed for this duty, and patrol once or twice a-day, about four or five miles to the front; if the enemy be not sooner discovered, they may range as far as ten miles from the army. When mounted troops are not available, infantry are employed; either cavalry or infantry will answer the purpose when the enemy is close at hand.

These patrols are preceded by scouts selected for their intelligence, whom no sound or sign will escape, and whose experienced eyes and ears will detect the approach of danger. If in serious danger of being cut off, these feelers fall back on their patrols, and if the advance of a large body of the enemy seems imminent, one or two men are sent back with the utmost despatch to acquaint the officer of the nearest piquet. If a post of the enemy is discovered, the patrol remains in observation of it; if only a small patrol is met, it is driven in, to disclose what is behind; but at night it is unwise to advance, as exchanging shots only tends to disturb your own troops in rear.

No strong force of the enemy will cross an enclosed country in the dark, except by roads. The main approaches must, consequently be carefully patrolled at night, but at the same

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time the men engaged on this duty must listen attentively for any movement through adjacent woods, or over the fields.

When returning from the front, by night or during very foggy weather, reconnoitring patrols are to frequently stop and listen, so as to guard against being followed up and overtaken suddenly by hostile patrols, who might also elude their observation, and creep through the sentries to attack the piquets.

In all reconnoitring, everything may be said to depend upon the judgment, resource, and enterprise of those engaged in it. The commander of a patrol of this description must start on his duty determined to find out something worth knowing, and keep pushing on till he succeeds; or until stopped by his adversary. Some risk must be accepted to gain the end in view, and loss may sometimes occur in its execution; but the extreme importance of ascertaining what the enemy is about, is paramount. Still, no precaution for the safety of the patrol should be omitted, and no futile engagement entered upon. Observation without fighting being its business, men are selected for this service who possess keen sight and quickness of perception.

Strong patrols.—Strong patrols are often sent forward to protect the camp or bivouac from the prying curiosity of the enemy's patrols or reconnoitring parties. They are also used to dislodge the enemy from posts he has occupied, and in doing so to ascertain what lies behind his advanced posts. They may, therefore, when stratagem fails, have sometimes to act on the offensive. Usually furnished by the reserve, or supports, they are rarely sent more than a mile from the front line of outposts.

A mounted orderly, when available, accompanies the patrol, to convey the information acquired quickly to the rear.

Good signallers should invariably go out with both reconnoitring, and strong patrols.

Before daybreak, strong patrols are sent forward, and proceed with the greatest caution lest they unexpectedly fall in with the enemy's columns waiting for daylight to make an attack.

SELECTION OF OUTPOST LINE.

A healthy camping ground, well supplied with water, on a good road, will usually determine the site for the camp or bivouac of the main body; for the line of outposts, a good defensible position, with an extended field of view, is desirable.

The outpost line will be selected: first, with reference to the position of the main body of the Army; and next, with regard to the approaches to it from the enemy's side.

There are, ordinarily speaking, two lines:—

(i) The line of observation, to which falls the two primary objects of the outpost, viz., gaining information, and preventing the enemy from doing so.

(ii) The line of defence, which resists any hostile advance until the main body is prepared.

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In order to combine defensive strength with scope for observation, it is desirable to choose a line marked by well-defined features, such as a ridge, the far edge of a wood, &c. The flanks should rest on some natural object; for example, a lake, river, or morass, a hill or a precipice. When such elements of safety do not exist, the flanks are, in the case of a small force, doubled back; and with larger bodies, detachments are detailed to strengthen the line at these points.

In operating with troops armed with weapons of precision, the line chosen ought to preclude the possibility of the adversary's artillery occupying any position from which it could shell the main body, without first driving in the outposts.

FORCE TO BE EMPLOYED.

As the duty of outposts is severe, the numbers employed are limited to the actual requirements. It is of vital importance, that men who have to march and perform the various duties incidental to a campaign, should have as much rest as possible. Every effort therefore is made, to avoid fatiguing the troops more than can be helped. At the same time, the reasons for using outposts require that there shall be sufficient men to find out what the enemy is about, and for general observation; and also to furnish sufficient supports and reserves, to resist all attacks long enough to enable the Army to get under arms and come into action.

Another point affecting the strength of outposts is: whether, if attacked, the main body would advance to fight in the position occupied by the outpost line; or whether, it would accept battle in a position in rear. Sometimes the ground may admit of no choice in this respect. If it be necessary to offer a determined resistance on the ground in occupation by the outposts, then they should be made strong enough to hold the position until the main body could reach it. If, on the other hand, the battle-field chosen for the main body be in rear of the outposts, then the opposition offered should only be of a nature to delay the advance of the enemy, until the main body had ample time to get into a fighting formation. This could be effected by a smaller outpost force.

The configuration and nature of the country, the character and proximity of the enemy, the strength of the army to be covered, the number of mounted troops available as an independent body to scour the front; all influence to a great degree, the numbers of the force to be apportioned to the outposts. As a general rule, it will seldom be necessary to detail more than 1/5th or 1/6th of the total effective strength of the main body to be covered.

COMPOSITION.

Outposts are composed of Cavalry, Mounted Infantry, or Infantry. As an exceptional arrangement, two or more guns

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are sometimes added to some particular post. For the defence of bridges or defiles which it is important to hold, machine guns may be used with advantage.

The relative proportions of the Mounted troops, and Infantry, and the method of employing them, depend on whether the action of the outposts is to be more, or less aggressive; and whether the country is open or enclosed.

Patrolling or reconnoitring by day, and when the country is favourable by night also, are most efficiently performed by Mounted troops (the instruction for this service being laid down in the "Movements of Cavalry," Part V.), but it is only when the enemy's main body is still far distant, that they can carry out those duties without assistance; if the adversary is close at hand, Infantry must be in a position to give timely support, to cover the retreat of the Cavalry patrols if driven in, and to check the enemy's progress.

When a reconnoitring force is of sufficient strength to operate against the enemy until reinforced, Artillery would naturally form a portion of it. Its position is usually with the reserve, but in special localities, where an inportant approach, defile or bridge had to be defended, it might be advantageous to place guns in the front line. In such a case, especial care will be taken that they do not incur the risk of being cut off, and that they can when necessary, effect a rapid retreat.

DUTIES OF OFFICERS.

All officers detailed for outpost duty, should realise clearly the great difference between it and parade exercise. At drill, precision of movement, concentration of authority, and the literal execution of orders are prescribed. On outpost duty, on the other hand, officers must never hesitate to act on their own responsibility, when by so doing they will carry out the intentions of the Commander of the outposts. He acts as the centre of the system, but decentralises his command. He gives as few orders as possible, but explains clearly the general aim and objects of his proposed arrangements. He should accord great latitude to those under him, and they must strive to merit the confidence reposed in them. They can succeed only, if they thoroughly comprehend and master the governing idea in all its various practical issues; and thus give effect to the Commanding officer's wishes, without blindly following rules, or even orders.

The fundamental principles should be taught to, and impressed upon, all officers; but the execution of them on service must be entrusted to their individual sagacity. The condition of the troops, the nature of the country, the weather, the efficiency, tactics, and armament of the enemy, constitute such ever-varying conditions as to render it impossible to attempt to lay down instructions applicable to all emergencies. To do so, would but hamper the intelligent and energetic officer; and might mislead

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one less astute or of inferior spirit. In fact, circumstances are so changeable, that the same officer will feel himself justified in placing outposts, over the same line of country, differently on different days.

Everyone entrusted with these important duties must carefully consider how the objects to be attained by the outposts may be arrived at. When proceeding to their posts, they must examine the country over which they pass, noting on their way the positions which would favour resistance, observing all landmarks and prominent objects. By this means they will, even at night, find their way should they have to fall back. Blazed trees, broken branches, small heaps of stone, &c., help to mark a road or path that has to be moved over in a return march.

Officers on outpost duty are to provide themselves with:—

Field glasses.
A good watch.
Magnetic compass.
Memorandum book.
Appliances for making a rough sketch.

Orders received are written down at once, the time of receipt recorded and all intelligence obtained is sent at once to the Head-Quarters of the outposts.

COMMANDER OF THE OUTPOSTS.—The General Officer Commanding the Army having selected an officer of rank and experience to command the outposts, will, either personally or through a staff officer, inform him on the following points:—

1. All that is known of the enemy, his movements, intentions, the positions he occupies, &c.
2. Precise situation of the intended camp or bivouac.
3. Roughly, the line to be taken up by the outposts.
4. The force to be employed, and the troops of which it will consist.
5. To what extent reserves and supports are necessary, or may be dispensed with.
6. Information regarding roads leading to the front.
7. The general idea. Whether an advance, a halt, or a retreat is contemplated.
8. The attitude to be adopted by the outposts. To what extent the enemy is to be opposed, and in which direction, if necessary, the outposts are to fall back.

All troops detailed for outpost duty are placed under this officer who is called the "Commander of the Outposts." He is responsible that the best information is obtained regarding the enemy, and that every precaution is taken to ensure the security and repose of the remainder of the force.

It is often convenient to make the officer commanding the advanced guard, the Commander of the Outposts; and to allow him to continue to act in that capacity.

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After he has received his instructions from the General Commanding, and with map in hand has studied the nature of the country in front and on the flanks, he issues orders to the officers whom he selects to command sections of the outposts on these points:—

1. Information regarding the enemy.
2. The approximate lines to be occupied by day, and by night.
3. Division of the outpost line into sections, and the allotment to battalions, &c.
4. The flank from which the piquets are to be numbered.

   N.B.—It is generally advisable to number from the flank which is first taken up, or which rests on some natural obstacle.
5. Measures for securing the flanks.
6. Defence of positions, mining bridges, lateral communications.
7. Directions regarding patrols.
8. Disposal of signallers, and mounted orderlies.
9. The countersign.
10. Disposition in case of attack, and the extent to which the enemy is to be opposed.
11. Submission of reports.
12. Where he himself is to be found.
13. The time the outposts will be relieved.

   N.B.—It is desirable that the foregoing, or as much as possible of it, should be communicated to the outposts before they march off.

In sub-dividing the outpost line into sections, about three miles may be considered a suitable command for Cavalry on open ground, and from one to one-and-a-half for Infantry.

As soon as the line has been taken up, according to his instructions; the Commander of the Outposts will inspect it, and make any modifications requisite.

His place is, according to the number of the troops under his command, with the reserve, or support; or in some central position near the line of outposts.

FIELD OFFICER COMMANDING A SECTION OF THE OUTPOST LINE.—The officer deputed to command a section of the outpost line, will ordinarily be the officer commanding a battalion, or a half-battalion. Under the orders he has received from the Commander of the Outpost, he will select the companies for piquet duty. In doing so, he will observe the principle of keeping units intact, though in some instances, especially when the group system is not adopted, he may find it necessary to break up large companies, and so avoid delay, and the excessive fatigue of relieving sentries distributed over a wide front.

After imparting to the officers who are to command piquets the information he has received from the Commander of the

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Outposts, and told them all he can to assist them in carrying out their duties efficiently, he will give particular instructions on the following points :—

1. Roughly, the ground to be taken up by the sentries.
2. Approximate position of the piquet.
3. Situation for examining posts and detached posts.
4. Patrols.
5. Defensive works, open communications. Preparations to destroy bridges or render defiles impassable.
6. The extent of resistance to be offered in case of attack.
7. Line of retreat if necessary.
8 Whether valises may be taken off.
9. Where he himself is to be found.

This officer should be personally acquainted with the officers commanding piquets, and if they do not belong to his own regiment, he must ascertain their characters and the reliance to be placed on each.

COMMANDER OF THE PIQUET.—Having received his instructions from the officer commanding that section of the outpost line of which he is to form a part, and being satisfied that he thoroughly comprehends what is required, the officer commanding a piquet will march his party, preceded by advanced and flanking scouts to the ground approximately indicated for his piquet. Here he will halt them, and send a few skirmishers, or a reconnoitring patrol, in the direction of the enemy, to cover him while he disposes of his sentries. He will also detail a file to communicate with the neighbouring piquets on either flank.

After a careful examination of the ground allotted to him, his knowledge of the situation will enable him to decide where the sentry posts are to be, and whether the service will be better performed by groups or double sentries. To form a decision on this point, he must take into consideration not only the ground actually to be occupied by his sentries, but all roads and paths in the vicinity, and heights within rifle range, and all undulations which might afford cover to the approach of an enemy.

The distance of the sentries from the piquet is approximately from 100 to 400 yards.

He will now proceed to post the sentries, or groups, to the best advantage ; while doing so, the piquet may pile arms, but must not break off.

On his return from the front, he will definitely fix the position of the piquet, and its sentry ; and will then detail parties for the following duties : —

Relief for the sentries,
Patrols,
Rounds,

and, if necessary—

Detached posts,
Examining post.

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The hours at which each patrol is to go out, must be determined, and the different parties kept separated by a few yards.

The dispositions for night will then be considered.

In his arrangements to strengthen his post, the officer commanding a piquet should take care not to begin works of an extensive kind, which would fatigue his men, and be useless if unfinished when attacked. Simple obstructions should be placed on the lines of approach, and in front of the piquet-position, to delay the enemy's advance, and throw him into confusion; and a small parapet may often with advantage be made to cover the piquet.

The confidence of the troops is greatly increased by a thorough acquaintance with the ground. This constitutes the chief advantage the defence has over the attack. At night, ambuscades on the side of a road, in a field, or behind a fence should be arranged. A few men judiciously placed, and well-handled, suddenly opening fire by volleys, upon an advancing force, even of considerable numbers, will so disconcert an enemy that he may often be driven back in disorder, with but little or no loss to those in ambush.

Officers commanding piquets must pay strict attention to the following .—

1. In posting sentries, employ no more men than are sufficient to watch thoroughly the country in their front.
2. The position of each sentry should fulfil the following requirements:—
   A good view to the front and flanks.
   Concealment from the enemy.
   Non-liability to sudden attack.
   At night, the power of seeing against the sky-line, anyone approaching, without themselves being seen.
3. Ascertain that the sentries thoroughly understand their orders.
4. Select intelligent men with good sight for important posts.
5. On dark nights, or in thick weather, the sentries to fix bayonets, but not by day, or on clear moonlight nights.
6. That the sentries are visited every hour between reliefs.
7. Relieve the sentries every two hours; but in severe weather, or at night if necessary, every hour.
8. The patrols to go out and return by different ways.
9. No men to stray from their piquets.
10. Allow no noise, and unless specially sanctioned, no fires.
11. Strengthen the piquet post in front as far as time and materials admit.
12. Be ready with a plan of action in the event of attack from any quarter, and at any hour, especially at dawn; remember, that if prepared, the enemy may be encountered with confidence.

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13. Write down all verbal orders, and any information likely to be of use, to the relieving officer.
14. Make a rough sketch of the ground in the vicinity, and ascertain the correct distances of prominent objects within range.
15. In making a report, written or verbal, give all details which may assist the officer receiving it to make accurate deductions, and take judicious precautions.

DUTIES OF SENTRIES.

A sentry should be made to understand clearly:—

1. The direction of the enemy, and the probable line of his advance.
2. The extent of front he is to watch.
3. The position of the sentries on his right and left.
4. The number and position of his piquet, and the best way to it.
5. The situation of the nearest examining post.
6. The names of villages, rivers, &c., in view; and the places to which roads and railways lead.
7. The parole and countersign.
8. That his duty is to see and listen without being seen or heard; and that he is to report the result of his observations.
9. On his vigilance depends the lives of his comrades, as well as his own.
10. He is to pay no compliments, nor allow anyone to distract his attention.
11. He must not permit any unauthorised person to pass through the line, nor more than one at a time to approach his post.
12. By day, strangers are to be directed to the nearest examining post; by night, all persons approaching are to be challenged, and ordered to halt; should they persist in advancing, they are to be shot.
13. He is to warn the outposts, when satisfied the enemy is advancing in some force, but not otherwise.
14. If attacked he should defend himself by firing or using his bayonet, as circumstances may require.

GENERAL OBSERVATIONS.

Communication.—When an Army is halted, telegraphic communication is generally established between the base of operations and the head-quarters of the force on service. Even when advancing, the field telegraph can be so quickly laid, that it may often be possible for the General Commanding, to direct the movements of all his troops by wire.

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Army signalling is well adapted to keep touch by day and night, between the main body and the various detachments which protect it, whether on the march or halted. Reconnoitring patrols especially should have good signallers with them, so that no delay may take place in the transmission of intelligence. If the configuration of the country is favourable, the extent to which a well-arranged scheme of visual signalling can be worked, is only limited by the consideration of the safety of those engaged in it.

In the absence of signallers, a preconcerted system of signs for the interchange of news must be adopted, only such signals as are not already provided for in Part II, § 21, will be necessary. These additional signals should be so simple that they may be readily learnt by all ranks, and not be liable to misinterpretation.

INTELLIGENCE.—Information concerning an enemy may be obtained by—

(*a*) Actual observation of his troops and their position.
(*b*) The traces he leaves.
(*c*) Questioning inhabitants.

There is no real security for an Army in the field without positive intelligence regarding the enemy, and this can best be obtained by piercing the mask behind which he endeavours to conceal himself, and learning, by direct observation, not only where he is, and what he is about, but possibly what he purposes doing. This will be most effectually attained by skilfully-conducted reconnoitring patrols; every point of vantage, such as a tower, or any lofty spot, should be occupied by an officer with a powerful telescope; by this means all the enemy's movements that are beyond the outposts range of view can be detected.

When a balloon is available, it can, in fine weather, do inestimable service in the way of spying out the enemy's movements and dispositions, as well as the geography of the country he occupies.

The following may serve as guides, in estimating numbers and distances:—

A battalion in fours,	800	strong, stretches	250	yards.
A squadron in sections,	100	,, ,,	100	,,
A field battery, without waggons	..	,,	110	,,
,, ,, with waggons	..	,,	224	,,
Horse Artillery battery	.. ..	,,	168	,,
Two-horse cart	.. .. ..	,,	10	,,
Four-horse waggon	.. ..	,,	15	,,

N.B.—Allow 10% *for straggling, with a force of about a battalion.*
15% *for a division.*
20% *for an army corps.*

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The ordinary pace of infantry on the march is 3 miles an hour, or 88 yards per minute.

In double time the pace of infantry on the march is 5 miles an hour, or 146 yards per minute.

The pace of cavalry and artillery at a walk is 4 miles an hour, or 117 yards per minute.

The pace of cavalry and artillery at a trot is 8½ miles an hour, or 250 yards per minute.

On the march—

Infantry in fours	occupy	1 foot	per man.
Cavalry in sections	,,	1 yard	,,
Cavalry in half-sections ..	,,	2 yards	,,
Cavalry in fours	,,	½ yard	,,
Artillery, without waggons ..	,,	110 yards	per battery
Artillery, with waggons ..	,,	224 ,,	,,

Troops will pass a given point in one minute, as follows :

In quick time at a walk—

264 infantry in fours.
58 cavalry in half-sections.
117 ,, sections.
234 ,, fours.
½ battery artillery, with waggons.
1 ,, ,, without waggons.

In double time or at a trot.

438 infantry in fours.
115 cavalry in half-sections.
250 ,, sections.
500 ,, fours.
1 battery artillery with waggons.
2 batteries artillery, without waggons.

With a combined force, at the pace of the slowest arm.

264 infantry in fours.
44 cavalry in half-sections.
88 ,, sections.
176 ,, fours.
2 guns, artillery, with waggons.
4 ,, ,, without waggons.

The following intervals between the three arms in combination must be allowed for in calculations :—

Between artillery and cavalry or infantry (one interval and a half), 28½ yards.

Between infantry and cavalry, 24 yards.

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On a calm night on hard ground—

A company marching can be heard	600	paces
A squadron at a walk	800	,,
A ,, trot	1200	,,
A single horseman	500	,,

(*b*) The position and strength of an enemy may be estimated from the number and extent of his bivouac fires. If the flames appear and disappear, it is a sign that the ground is occupied, and that people are moving between the observer and the fires.

If there are an unusual number of fires, it is probable that the enemy means to retreat, and has merely lighted extra fires as a ruse. If there is much smoke at an unusual hour, the enemy may be cooking, prior to a march.

If the dust raised by troops in motion be thick and low, it most likely indicates infantry; if higher and less dense, cavalry, when broken, artillery or train. The length of such clouds of dust enable the strength to be roughly estimated; and also the direction of march. In such calculations, the effect of wind should be taken into consideration.

Dogs barking, horses neighing, an uncommon amount of smoke from chimneys, are all signs of an abnormal condition of things in inhabited localities, probably caused by the presence of troops.

Much may be gleaned from tracks on roads. If the ground is evenly beaten down with footprints, the column consists of infantry alone; hoof and waggon-tracks argue the probability of cavalry and artillery. If the tracks cover only a portion of the road, possibly the column was not a large one; if the road is trodden on both sides, the force was probably of considerable strength.

In coming to a deserted camping ground, the number of fire-places, and the length and breadth of the ground recently occupied, are guides to the strength; while articles of equipment lying about, buttons, papers, dead horses, ammunition, &c., show the service to which the troops belonged. During a retreat of the enemy, such traces will lead to valuable inferences being drawn as to the character of his retreat, and the state of discipline of his army.

(*c*) To collect information from the inhabitants of the country quire judgment and tact; but by questioning villagers, and lying those who give information, and by the promise of otection for themselves and their property, important intelli-nce may be acquired by patrols and reconnoitring parties.

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Deserters and spies should be captured; it may be advisable sometimes to carry off the head men of villages, who decline to be interrogated, or who give misleading answers.

REPORTS.—Officers employed on outpost and all patrol duties will state in reporting the information they have acquired:—

The source from which it emanated.

The manner in which obtained.

How far it is reliable.

The place, hour, and date of despatching the report.

The points of the compass will, if possible, be mentioned in describing natural objects, or towns, roads, &c., When this is not practicable, the writer will particularise, by interpelating before the words "right," "left," "front," or "rear;" "our," or "the enemy's." Above all, it must be legibly written, the names of places, and of all foreign people being in printed characters.

It is essential that reports should be clear and precise. Vague and indefinite terms, such as "a narrow road," "large village," "wide stream," "a high wall," "a bad bridge," are to be avoided.

ARTILLERY.—Artillery will sometimes form a portion of the reserve, and under very special circumstances may even be detached with the supports, or with the piquets; but it must be remembered that outposts are not intended to fight battles, but to delay an attacking enemy. The employment of artillery with outposts, except under special circumstances, is to be deprecated as liable to entail a general action in advance of the selected position, and to expose the guns to undue risk.

If the outpost line commands within range defiles or bridges over which the enemy must pass, it may be desirable, however, to place guns to harass the enemy while debouching from the defile or passing over the bridge; skirmishers in this case should be thrown forward to protect the guns from the enemy's sharp-shooters, who might have crossed by fords or other means.

Artillery may often be placed with advantage to cover the retreat of the advanced line of the outposts.

When artillery is attached to a post stationed in a defile, the guns are generally unlimbered and ready for action; but in all other cases in an enclosed country, they should remain limbered up as near to the main road as possible, but never in an enclosed space, where they might be liable to be cut off and unable to effect a rapid retreat.

FIRES.—Outposts may be allowed to light fires, when they can be made out of view of the enemy. When fires are permitted,

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alarm posts in the event of attack, are in rear of the fires, so as to prevent the troops, when drawn up, being seen by the enemy; and to compel him to expose himself should he advance.

FLAGS OF TRUCE.—When it is necessary to communicate with the enemy under a flag of truce, a smart officer, conversant with the enemy's language, and of a cheerful disposition should be selected. He will be accompanied by a trumpeter, and both should be good horsemen and well mounted. They should ride towards the enemy's position with flag flying and trumpet sounding, so as to attract his attention. An officer will usually be sent out to meet them; if not, they should not retire until satisfied, after being persistently fired at, that they have been seen by the enemy, and that he will not receive them.

On the approach of an enemy's flag of truce, it will be halted by the line of sentries before it can overlook their position. The officer, or non-commissioned officer of the nearest examining post, will then be summoned; and will detain the flag of truce until instructions are received from the commander of the outposts; who will be immediately communicated with.

If the flag of truce is merely the bearer of a letter or parcel, the officer commanding the piquet (or examining post if there is one near), will receive it and instantly forward it to the head-quarters of the outposts. The flag of truce having taken a receipt will be required forthwith to depart, and none of the outposts must be suffered to hold any communication with this party.

If permission be given for the flag of truce to pass, the individuals with it must be carefully blindfolded and then led under escort to the commander of the outposts. No conversation is to be allowed *en route*, and every precaution must be taken to prevent the party gaining any information, which might subsequently prove useful.

OUTPOSTS WHEN FURNISHED BY ADVANCED GUARDS.—When a force is on the march from day to day, the advanced guard will furnish the outposts. It arrives early on the ground and while awaiting the arrival of the main body, a position can be selected for the outposts, and the different detachments moved into their places before the main body encamps. This obviates the disadvantage of a fresh body of troops arriving later on the ground having to take up a forward position, possibly in the dark; and also what is equally undesirable, the marching of troops backwards and forwards, which would occur in replacing the advanced guard.

The outposts to cover the flanks, as well as the troops required for detached posts, are supplied by the main body on its arrival.

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OUTPOSTS, WHEN TO BE WITHDRAWN.—If the army is about to advance, the outposts are not to be withdrawn until the advanced guard have passed through them, and even then some will be required to protect the flanks until the main body, train, &c., have moved off. The outposts of the previous night will then follow in rear under the command of the senior officer, and will form the rear guard.

PLACED UNDER COVER OF ADVANCE GUARD.—After a march unless the outposts are formed from the advanced guard itself, they will take up their position under cover of the advanced and flank guards and their scouts.

AFTER VICTORY, UNDER COVER OF PURSUING TROOPS.—If a halt is intended after a succesful action, outposts are placed under cover of the pursuing troops, and should not lose touch of the enemy.

OUTPOSTS DURING RETREAT.—During a retreat, outposts as a rule forming the rear guard, hold their ground with tenacity in order to deceive the foe, and give time for their own main body to move off. This resistance, however, must not be so protracted as to compromise the safety of the army by obliging it to fight so as to extricate the outposts.

NOT TO BECOME SERIOUSLY ENGAGED.—Whenever outposts cover, at some distance, a position on which an army wishes to fight, they must take care not to become seriously engaged, but to fall back as slowly as possible. This retrograde movement will be made deliberately, and in perfect order, to avoid creating confusion, and to gain time for the main body to get under arms. It may sometimes happen, that outposts occupy the selected battle-field, in which case the ground must be held at all hazards.

STANDING ORDERS.—During a campaign, or any particular operation, it is desirable that standing orders be published for the guidance of troops employed on the outpost service. Supplementary orders, which local contingencies may render necessary, being issued to those concerned before they proceed on duty.

GENERAL REMARKS.

It is difficult to lay down any rule as to the number of infantry that should be allotted to any given length of front, or the exact division of a battalion, but the following is quoted: —"A battalion of infantry should be distributed as follows: In reserve, four companies, and on outlying piquet four companies; each of these latter four companies to be divided into two equal portions, one to act as a support, the other divided into two or more piquets of about equal strength of about thirty or forty men each; these again being divided into three equal parts, one furnishing the N.C.O. for the reliefs, patrols, &c., and

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the privates for patrolling; the other two furnishing three reliefs for the double sentries in advance, and the single sentry over the arms. A battalion would therefore cover from 2,000 to 3,000 yards, according as the country was close or open."

Roughly speaking, from 500 to 700 men per mile may be taken as a fair estimate.

DISTANCES OF OUTPOSTS FROM THE ARMY THEY COVER.—The distance of the sentry line from the army should be about 2 miles, for the following reasons. It is considered that a properly handled outpost line would if attacked and forced to retire, delay the enemy and limit his advance to one mile an hour. This gives the army two hours to prepare for action, which ought to be sufficient.

Again:—2 miles from the sentry line to the army=3,520 yards, and we may assume that the rifle fire from the sentry line would be effective against batteries at 1,000 yards. This would keep the enemy's guns from approaching nearer than 4,500 yards, a distance sufficient to prevent them from molesting the camp.

There is no reason why this distance of two miles should not be exceeded if the nature of the ground permits. Lord Wolseley says:—

"All outposts should be as far in advance of the army as they can be with safety; that is, without exposing them to being cut off or overpowered before assistance can reach them."

DEFILES.

Outposts should always keep defiles, bridges, causeways, etc., between them and the enemy. The passage of such by the enemy would be rendered almost impossible if a couple of guns are attached to the piquet stationed there. Similiarly with ravines or defiles leading towards the enemy. In such cases it is recommended that the guns should be unlimbered and ready for action.

WOODS.

If a wood occurs in the outpost line, try to occupy the edge nearest the enemy with the line of sentries, and fell and entangle the edge.

If a wood occurs in front of the line of outposts which cannot be extended to include it, the line of sentries should be sufficiently withdrawn to be out of accurate rifle fire—say 700 or 800 yards—cover should be made, and the woods frequently visited by patrols.

If a wood is so large that the outpost line must pass through it, place the line of sentries on the near edge of any openings, or should there be none, try to make clearings, or look for high ground.

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Never use more men than are absolutely necessary. Remember that in civilised warfare, ground that is difficult to watch is also difficult of access. The problem which the British officer on service has to solve, is not so much how to conform to established theory and orthodox rules, as to make the most of the limited numbers at his disposal.

OUTPOSTS AT NIGHT

Make as few changes as possible at night. There appears to be an altogether exaggerated apprehension of probable attack by the enemy during darkness, whereas there is hardly an instance of one to be found in military history.

Hamley. No occurrence can be rarer than a night attack by a considerable force in the open field. When the difficulties are for a moment considered of moving in order of march, or in battle order, or in any order, on ground little known by day and absolutely bewildering at night, these enterprises must be seen to belong to the domain of fancy or fable. Even the familiar march just before dawn, in order to attack with the daylight, rests on no better foundation.

Some writers on outposts recommend an amount of change at night which amounts to little short of an entire redistribution of the whole outposts. The greater *desideratum* is for all ranks to be well acquainted with the ground, so that sentries can watch with certainty, reliefs take place with regularity, patrols proceed with confidence, and unnecessary fatigue be spared to all. If any changes are made, the roads and approaches from the enemy by which alone he could advance in force, should be more carefully guarded, and such changes must be notified to all concerned.

CONDUCT ON ATTACK.

If the outposts cover an army drawn up in position for battle the whole outpost line should fall back slowly on attack. In this case special orders as to the amount of resistance to be offered, will probably have been issued beforehand. In other cases, the usual rule is for the sentries to fall back slowly on the piquets, which will extend to reinforce them. If hard pressed, the two combined will fall back on the supports, and the reserve will move up as required, unless the line of resistance has been fixed as the station of the reserve, in which case the remainder will fall back on it. The flanks must be carefully watched throughout.

On no account must the enemy, if repulsed, be pursued beyond the original sentry line, without special orders. The original ground should be merely reoccupied.

If at any time a man deserts in the direction of the enemy, an immediate report should be sent to the commander of the outposts, and the parole and countersign changed at once.

OUTPOSTS SCHEMES.

Outposts schemes now form such a prominent feature in tactical examinations that the following memoranda may prove useful.

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The whole system of outposts is divided into three distinct lines:

1st. The line of Piquets and Sentries.
2nd. The Supports.
3rd. The Reserve.

the latter may or may not be required.

As a *general* rule the Reserve should be equal to all in front of it and the supports equal to those in front of them; though circumstances may of course modify this rule. These *data* being given, it becomes easy to calculate the number of double sentry posts that can be furnished by a given force or *vice versâ*, a line of front being given, to calculate the number of men required for duty.

First let it be assumed that 100 men in the Piquet line can furnish ten double sentry posts; for instance.

Strength of company -	100
Deduct N.C.O. visiting Patrols, Reconnoitring Patrols, Orderlies, Officers' Servants, Cooks, Signallers, etc. -	40
	60

which divided by six, the number required for each post, gives ten double sentry posts.

In other words the number of *sentry posts* may be taken at 10 p. c. of the *men* available for piquet duty.

Example 1: A force of 20,000 Infantry is ordered to cover its front with outposts—Reserves required. Find the number of double sentry posts that can be furnished. Allowing $\frac{1}{2}$ of the whole for outpost duty, we have:

2)4000

2000	Reserve
2)2000	Remaining
1000	Supports
1000	Piquets

which gives 100 double sentry posts.

Ex. 2: A force of 1800 Infantry is detailed for outpost duty. Reserve to be $\frac{1}{3}$ of the whole. Required the number of sentry posts.

3)1800

600	Reserve
2)1200	Remaining
600	Supports
600	Piquet Line

which gives 60 double sentry posts.

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Ex. 3: A given line of front is to be covered with outposts and on examination it appears that 36 double sentry posts will be required to watch it. Required the strength of the outposts. Reserve required, but only to be 1/4 of whole.

36 double sentry posts give 360 men.

360 Picquet Line
360 Supports

3)720

240 Reserve 1/4 of whole.

960 or 1 complete Battalion.

CAVALRY.

As a general rule, allow half the proportion of Cavalry that Infantry would require to watch a given front; or allow double the front for an equal number of men.

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Lecture IX.

The following chapters forming Part V. of Instruction and Movements of Cavalry, are added in accordance with G.O., 29, 1887.

FOR SUBALTERNS AND CAPTAINS.

PART V.—DETACHED DUTIES OF CAVALRY.

The detached duties of cavalry by their very nature do not admit of exact regulations being laid down which would meet all possible contingencies, nor is it desirable to attempt to do so, especially in the case of cavalry which is called on to carry out these duties under extremely varied conditions of country, climate, and enemy. In order, however, to ensure mutual co-operation and understanding in the field, it is necessary that the troops should be instructed on a uniform system.

Whilst, therefore, certain fixed rules and forms are laid down, such as experience has proved to be most generally suitable to the contingencies of war in all countries, it is not intended that there should be a rigid adherence to the letter of these rules, so long as the modifications introduced in each case are in accordance with their spirit.

In each individual case it must be considered how, and with what expenditure of force, the object in view, whether it be security or information, can best be obtained. As the service of exploration and reconnaissance is particularly and almost entirely in the hands of the cavalry, there is no arm in which there are so many opportunities of distinction, not only for the subordinate leaders, but also for individual men. Non-commissioned officers may, and probably often will, have to replace officers; they must, therefore, receive as high a training as possible, so that, in case of necessity, there may be no lack of material.

The following are detached duties:—

1. Measures for security on the march, in camp, bivouac, or billets.
2. Reconnaissance; both with regard to the country and the enemy.
3. Escorts and foraging.
4. Protection of the lines of communication; raids against the enemy's communications.

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General Principles of Detached Duties of Cavalry.

Certain clear and well-marked distinctions exist between the different branches of Cavalry Detached Duties; and for their proper performance it is important that the distinctions should be thoroughly understood by all.

The most important of these duties are the following.

1st. Advanced and Rear Guards, and Flank Detachments, having principally for their object the protection of a *moving* main body against surprise.

2nd. Outposts, having for their object the protection of the immediate front and flanks of a *stationary* main body in rear.

3rd. Reconnoitring Parties, having for their object the gathering of information as to the position, movements and numbers of the enemy.

Advanced and Rear Guards.—These are *moving* parties, constantly moving on and scouring the country in the immediate front, rear, and flank, in order to secure the safety of the advance or retreat of the main body, or at least to give it timely notice of any intended opposition to its movements.

For this purpose it may be necessary for the advanced guard to go a considerable distance in front; still its object is not general reconnaissance, but the safety of the immediate front and flank of the main body.

The movements of an advanced or rear guard are dependent on the movements and progress of the main body. And herein mainly and especially its duties differ from those of reconnoitring parties (reconnaissance proper).

Outposts.—These provide for the safety of the main body in rear. They consist of detachments pushed to the front on *watch*, to enable those behind them to rest in security. There can be no real rest without the feeling of security.

They are pushed forward only so far as may enable their vedettes and patrols to give such timely notice of the approach of an enemy, as may be needed to enable the main body to turn out and resist an attack.

Reconnoitring Parties.—These are moving parties sent out from the main body, whether stationary or advancing, in order to gain any possible information in regard to the enemy, whether in the immediate front or at a distance.

Reconnoitring parties often precede advance guards, whilst at other times they are employed independently.

They are distinguished from advanced guards in the following particulars:—

a. The object of an *Advanced Guard* is intelligence as regards the enemy in the immediate front and flank. It is also intended to protect the front and flank, if necessary, either by making or resisting an attack.

The object of *Reconnoitring Parties* is not (primarily at least) intelligence as to the immediate front and flank, but as to the

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general movements, position, and strength of the enemy. Moreover, reconnoitring parties are not intended to fight. They never fight, except it be absolutely necessary in order to gain information which cannot be otherwise obtained.

b. An *Advanced Guard* in its movements conforms to the movements and progress of the main body.

Reconnoitring Parties, on the other hand, do not conform to the movements of the main body. They supply, or ought to supply, the information on which the movements of the main body will depend.

The duties of Reconnoitring Parties cannot be exactly defined. In each case they receive special orders as to the direction in which they are to go, the distance to which they are to go, and the objects which they are sent out to discover. They are parties of "Discovery," sent out with special orders and for a special object.

It is impossible to exaggerate the importance of these duties. The whole fate of a campaign may depend on the accuracy or otherwise of the intelligence transmitted, or on the early arrival of that intelligence. Intelligence received to-night may be invaluable; the same intelligence received to-morrow may be useless. On the other hand, inaccurate intelligence carelessly or hastily gathered may lead to disaster to the army.

S. 1.—*Advanced and Rear Guards.*

General Observations.

As troops on the march must, as a rule, move by roads, the length of a column is very great in proportion to its breadth. For example, four squadrons of cavalry in sections will occupy about 400 yards, whilst a British infantry division on the war strength, in one column without baggage, will cover about $3\frac{3}{4}$ miles.

To deploy for action, therefore, requires a considerable time, probably $1\frac{1}{2}$ hours, and, during this time, the troops are either not at all, or only partially, in a position to fight.

So long as the enemy is distant, the chief consideration is the ease and comfort of the troops, but as soon as the theatre of war is reached, other considerations outweigh these.

In all marches, independent detachments composed, as a rule, of all arms, precede, flank, and follow the main body, and in the first two cases are called "Advanced Guards" and "Flank Detachments," and in the last "Rear Guards."

The strength and composition of these detachments depend on the strength of the main body, the character of the country and enemy, the vicinity of the latter, and the nature of the march, according as it is—

1. An advance before a battle.
2. A pursuit after a victory.
3. A retreat after a defeat.

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In all cases, however, both by day and night, and under all circumstances of country, climate, weather, and enemy, cavalry, owing to its mobility, plays an important rôle, and is, as a rule, the arm nearest the enemy both in advance and retreat.

The duties of the advanced guard and flank detachments are—

1. To clear the way for the main body and protect it from surprise.
2. To reconnoitre the front and flanks from a military point of view and to report the presence and dispositions of the enemy to the officer commanding the main body, so that he may make his arrangements in plenty of time.

The duties of the "Rear Guard," during an advance, are principally of a police nature; in a retreat, it protects the main body from surprise and endeavours to hold the enemy in check.

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ADVANCED GUARD.

The security of troops on the march is provided for in front, and to a certain extent on the flanks, by an advanced guard.

At some considerable distance from the enemy, or when the ground is very open, it may consist of cavalry alone or cavalry and horse artillery. In the case of an independent cavalry Division or brigade this must naturally always be the case.

The strength of an advanced guard, as a general rule, varies from 1/6 to 1/4 of the whole force, but it always includes a body of cavalry sufficiently strong to perform the duties of reconnaissance and security from surprise.

The distance between the advanced guard and the main body depends on circumstances; if too great, the advanced guard runs a risk of being overwhelmed, if too small, the main body may be surprised.

The only guide, therefore, that can be given is, that the leader must have regard to the following points:—

(*a.*) As the advanced guard has to give timely warning of an enemy's approach, it must be pushed further to the front in proportion to the length of time the main body requires to deploy, and the ease and rapidity with which the enemy can advance.

(*b.*) The time intelligence is likely to take in coming in and being transmitted, and the amount of resistance that can be offered by the advanced guard.

(*c.*) The character of the enemy, his tactics and armament.

It is clear that on a night march, or in snowy, foggy, or very hazy, rainy weather, the distance between the various parts of the advanced guard and its distance from the main body must be considerably reduced, and in a very open country proportionately increased.

Formation of the Advanced Guard.

The strength and composition of an advanced guard will of course depend upon the force and nature of the marching body which it has to protect, as well as upon the force and proximity of the enemy and the nature of the country to be traversed. The following instructions refer to an advanced guard composed of cavalry only, and of a strength considered to be suitable for the protection of a force consisting of one or two regiments. If a stronger advanced guard is considered requisite, the reserve can be reinforced by an additional squadron.

The principle of the formation of an advanced guard is that it should consist of a number of bodies gradually increasing in strength from front to rear, so as to oppose a constantly increasing resistance to an enemy, and to provide each party in front with immediate support if any slight opposition impedes its advance.

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Supposing a squadron to be employed for the duty, it will be divided into the following parts:—

1. Advanced party, divided as a rule into three groups.
2. Support, with flanking patrols.
3. Reserve.

A squadron 48 files in line, to march off to the right as an advanced guard, might be told off for drill purposes as follows, the number of files for the advanced party depending on the number of non-commissioned officers (here supposed to be two) in the ranks; it being understood that the advanced party should have with it three non-commissioned officers. On service, however, the men for the more advanced duties must not be told off haphazard, but must be carefully selected.

Officers with the Advanced Guard.

Every officer should be provided with the following articles, as they are absolutely necessary for the proper performance of detached duties. Non-commissioned officers in charge of parties should, as far as possible, be similarly provided:—

The best map procurable; main roads traced in red, rivers in blue.

Pencils—plain black, red and blue; India rubber.

Forms of report, ready prepared; drawing paper, or cardboard ruled in 1in., 3in., and 4in. squares. Tracing cloth.

A compass, pair of dividers, and protractor.

Memorandum book, with metallic pencil.

A knife and box of lucifer matches.

A transparent cover for map, in case of wet weather.

A pair of field glasses.

A watch, to be set by that of the officer commanding the advanced guard.

Commander of the Advanced Guard.

The commander's attention must be principally directed to the following points:—

1. Measures for the security of the march.
2. Rapidly obtaining and transmitting reliable information regarding the enemy.
3. The ground, and how best to take advantage of it.
4. What he proposes to do if the enemy is encountered.

As regards No. 1, it is attained, in the case of a mixed force, by the cavalry; the distance to which it extends, and the number of parties sent out must be sufficient to secure the front and flanks as far as the main body. All measures must be so taken that neither distance, communication, nor time are lost, and that the march of the whole is not delayed.

As regards No. 2, which is also provided for by the cavalry, the duty of the commander is not limited to getting information and transmitting it; he must be able to collate the various reports he receives regarding the strength, arm, and direction of

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march of the enemy, and from these, and from his personal observation, see through the enemy's intentions, estimate time, distance, and the possible danger that may arise during the interval, and thus transmit a reliable dispatch.

With respect to No. 3, a correct reconnaissance of the road and country is as important as Nos. 1 and 2.

With respect to No. 4 the cavalry is again the chief factor.

If the advanced guard meets the enemy, the first thing to be done is to find out what it has in front of it, whether an advanced guard, flank detachments of a column on the march, the outposts of a stationary force, on what road their main body is moving, and how far it is off. The shortest and best method of ascertaining the above points is to take a few prisoners.

In addition to the main points already mentioned the following is a summary of the various other duties which the commander of an advanced guard must see carried out:—

On halting at any place, all approaches are to be reconnoitred and guarded. An officer should be sent to the highest spot to get an extensive view. The town hall, railway station, post and telegraph offices are to be occupied. In an enemy's country the principal authorities will be ordered to cause all weapons of every description to be brought, at a fixed time, to some enclosed place, where they will be rendered useless. They are further to point out any store or manufactory of powder, dynamite, or other explosive, with a view to their being rendered harmless. The authorities are to be warned that the least negligence in the above two matters will entail the severest penalty not only on the individual, but also on the whole locality.

The mayor, or corresponding personage, must wait on the commanding officer, and afford all information that may be required regarding the neighbourhood, roads, bridges, fords, resources in provisions, bakeries, mills, drinking places, smithies, wheelwright's and carpenter's shops, also resources in the way of cloth, leather, &c.; he will also procure guides. Schools, offices, &c., are to be searched for maps. On arriving at a river the passages are reconnoitred, and if the bridges are broken, or insufficient, approximate measurements are taken, and carpenters and material are to be requisitioned, if practicable, to proceed at once with the repairs, and other crossings must be sought for. The important point is to secure as many points of passage as possible for the troops that are in rear.

If artillery fire is heard, an officer's patrol must be sent to ascertain the cause.

The above principles hold good for all detachments, whether large or small, which are pushed forward as an advanced guard.

The commander of the advanced guard (squadron leader) will usually march with the reserve, but being responsible for the conduct of the whole advanced guard, is not restricted to any one position.

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Before starting he must see that he not only gets his instructions, but understands them, writing down in his pocket book the main points, such as places he is to pass, and marking them on his map.

He then inspects his command, and pays particular attention to the arms and ammunition; to the saddling, state of the shoeing, whether all have spare shoes, &c.

As a general rule no grey, unsteady or neighing horses should be allowed in the advanced party or flanking patrols; if there are any, or any of the horses are badly shod, or the men's arms are out of order, he will detail others in their place.

All orders and instructions for the advanced guard are sent to him, as also the reports from the various fractions of the advanced guard; such of the latter as are of importance will be forwarded by him to the commander of the main body, but he will invariably state his own opinion as to their reliability. He will keep the commander of the main body regularly informed as to the presence or absence of the enemy, and anything that could effect the movements of the main body.

Should he at any time leave the reserve, he will make arrangements to ensure his receiving orders and reports without delay, and will instruct the commander of the reserve (troop leader) how to act in his absence.

Commander of the Support.

The officer commanding the support (troop leader) is in charge of the whole advance, including the flanking patrols; and although the advanced party is under the immediate direction of his subordinate, it is he who is responsible to the commander of the advanced guard that the duty is properly performed.

The duties of the advanced party and support are—

1. To explore the ground and cover the march of the advanced guard in such a manner as to avoid unnecessary delays.
2. Reconnoitre the road and country on both sides of the main line of advance with regard to the nature of the road, its capabilities from a military point of view, and available resources.
3. Rapidly gather as complete and reliable information regarding the enemy as possible.
4. Drive back hostile parties opposing the advance, and take prisoners from them.

To explore the main line of advance is exclusively the task of the advanced party and support; as regards the flanks they are only responsible as far as their flanking patrols extend.

Beyond this limited zone the safety of the flanks of the main body must be provided for by special flank detachments, varying in strength from half a troop to a combined force of all arms.

All flanking parties keep up a constant communication with the main body from which they are detached.

To carry out the above duties, the commander of the support

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must regulate his advanced party, and flanking patrols, in such a manner that they scout sufficiently far, and at the same time keep up communication with him, and are able to rely on his support.

He must utilise every possible means for obtaining information regarding the enemy, his numbers, position, &c. To do this it is not only necessary to send out patrols and observe for himself, but all persons who are likely to know should be questioned, and, whenever possible, prisoners taken.

All information should be reduced to writing, whenever possible, clearly and concisely.

If there is a guide, he will march with the support.

In case the enemy is met, the support commander will act in accordance with the spirit of his instructions, and if he is unable to drive the hostile army back, either owing to the latter's position or superior force, he will always report how near the troops in rear can approach without risk of discovery, and indicate the best way, under cover, of reaching the place from which the enemy can be reconnoitred.

Advanced Party.

This will consist, as a rule, of at least ten men and three non-commissioned officers. If the country is open and practicable for cavalry, or there are several parallel roads within a quarter of a mile or so on either side of the main line of advance, the advanced party will be broken up into three groups, termed Centre Group and Right and Left Flank Groups of the advanced party, the senior non-commissioned officer having the general charge of the whole. If the march is along a confined road and the advanced party cannot be broken up, two advanced scouts should be pushed forward, and any men considered unnecessary can be sent back to the support. The centre group, commanded by the senior non-commissioned officer, follows the route to be taken by the main body, and, if it consists of only four men, is formed as follows:—Two men ride in front, one on each side of the road; their duties are to observe the road in front and on the immediate flanks. They must keep an extra sharp look out at all bends and turnings, and on reaching any high ground over which the road passes look carefully round before exposing themselves. The non-commissioned officer with one man rides in rear of the two men in front, in order to direct them. The fourth man can be employed when necessary as a connecting link with the support, and thus keep up the communication, which, at turnings of the road, in woods, towns, broken ground, at night, or in foggy, snowy, or hazy weather, is very apt to be lost. The distance from the support varies according to circumstances; for instance, at night, or in very broken ground, it must be shorter than in open ground, &c. As a general rule, it varies between 300 and 600 yards.

The flank groups, each consisting of at least three men and a non-commissioned officer, ride parallel to the main line of

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advance, roughly level with the two men of the centre group, and should be, as a rule, in view of them. Two men will ride in front and one in rear of the non-commissioned officer. Their duties are to search the ground in their immediate neighbourhood, and to assist the centre group by turning the flanks of woods, villages, &c., and examining the high ground on each side when the road passes through a defile. They examine bye paths and cross roads at a trot to avoid delay.

Flanking Patrols.

Six to eight men, under a non-commissioned officer, or, even under certain circumstances, half a troop on one or both flanks. They ride parallel to the main line of advance, and roughly level with the reserve. Their duties are to search the ground and main communications which lie beyond the view of the advanced party, thus securing the flanks of the troops in rear. The interval between them and the main line of advance is so variable that it is almost useless to lay down any normal distance. It may, however, be said that they should never be nearer than half a mile from the main line of advance; the front scouted will then be about a mile. In an enclosed country they will generally march on the nearest suitable road running parallel to the main advance.

On service a flanking patrol should never consist of less than 6 men under a non-commissioned officer, otherwise they will be unable to carry out their duties, especially in an enclosed country where they cannot be immediately supported. For instance, if they come to a village or hamlet, the flanks have to be turned before they can venture to ride through it; this will absorb 4 men. The leader must then ask questions, and may possibly have to send information; this will reduce his command temporarily, and, if he comes to cross roads, a high hill from which a view is to be obtained, a wood, or another hamlet, before the men he has sent with the message return, he has not sufficient force to carry out his duties

Again, 6 to 10 men is a sufficiently powerful force to drive in, or hold in check, hostile patrols; they will also be more enterprising than a smaller party, especially in a country where the inhabitants are unfriendly, as, in this case, the latter are very likely to attempt to overpower a party of 3 or 4 men, whilst they would hesitate in making a demonstration against a force twice as numerous.

If the commander of the support has not been told the roads, &c., to be followed by the flanking patrols and their strength, he must judge for himself if they are necessary on one or both flanks, and what route they are to follow.

He must tell them where to rejoin, and should give them a rough tracing of the route on tracing cloth.

In an enclosed country, in the immediate presence of an enemy, and at night, unless special orders are given to the contrary, all men employed in the advanced party and a proportion of those in the flanking patrols, march with their arms drawn and loaded,

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the leaders with swords drawn. In an open country, however, or by day, swords need not be drawn, and only the leading men in the advanced party or patrols march with arms drawn.

The Support.

This consists of the remainder of the troop, and follows the main line of advance at about 500 or 600 yards distance from the advanced party, on as broad a front as the road will allow.

Its duties are twofold :—

(*a*) It forms the body from which men in the parties in front are replaced, and supplies any other detachments that may be required.

(*b*) It is the first formed body to meet the enemy.

The commander is not bound to remain with this party ; indeed the most suitable place for him will often be with the advanced party, where he can see everything, and take his measures accordingly. In this case the senior non-commissioned officer takes temporary charge.

All information gathered by the commander of the support will be forwarded to the officer commanding the advanced guard.

The party halts, as far as possible under cover, whenever the advanced party halts, until the cause of the delay is ascertained. Similarly, it halts whilst a village or wood is being turned, until it is seen that they are unoccupied, or the reverse.

It keeps up the connection with the reserve by means of a file as connecting link, and also with the advanced party when the latter is not strong enough to furnish a link.

Swords need only be drawn in an enclosed country, in the immediate presence of the enemy, and at night.

The Reserve.

The troop forming the reserve will march at "Attention," and be ready to move quickly to the front or flank if its assistance should be required, or to form a rallying point for the parties in front. It should, as far as possible, remain intact, and the only detachment supplied by it is a file as connecting link between it and the main body. It follows the Support at a distance, varying with the closeness of the country and clearness of the atmosphere, of 600 to 800 yards.

Communication between the parts of the Guard.

The advanced party and flanking patrols must have a code of signals by which they can communicate, as talking may betray the presence of the party to the enemy, and riding backwards and forwards uses up the horses. These signals should consist principally in signs, such as holding the hand over the head for halt, and pointing in the direction they wish the others to look. Signalling with flags is not suitable so far in advance, as the waving of the flags would attract the attention of the enemy; but signallers should always accompany the advanced guard, so

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as to be able to transmit intelligence whenever circumstances render it possible to do so with safety.

When one of the men of the advanced party or support is sent back with a message, his place should be taken by a man from the reserve moving to the front. The messenger, after delivering his report, falls in with the reserve. By this arrangement each party in front is kept at its complete strength, while messages are forwarded direct from the front to the rear by a single man, without the risk of mistake which might occur in transferring them from hand to hand.

Men sent with messages should return carbines, taking care to unload.

As the rate of march of the main body necessarily regulates that of the advanced guard, each party of the latter must be careful to maintain connection with the body next in rear of it. To this end links should be dropped at points where, owing to bends in the road or to the hilly or enclosed nature of the country, the usual connecting files are unable to keep in sight the parties between which they are marching Connecting files should always be double, when men can be spared, as many horses are troublesome and neigh when alone, and one of the two men can pass on any communications from front to rear, or *vice versâ*, and draw attention to any change of direction or pace in rear.

As the habit of constant communication is essential, it is a good precaution to arrange that a report shall be sent from the advanced guard to the main body every hour, half-hour, or other named period.

Method of Examining Localities.

Villages.—The precautionary measures necessary before passing an inhabited locality depend chiefly on the proximity of the enemy.

If there is reason to suppose that a place is unoccupied, it is generally sufficient if the groups of the advanced party ride rapidly round and through it, signalling to the support that all is clear. To halt and report the place unoccupied is a waste of time and horseflesh.

In localities where there are post or telegraph offices, all letters, registers, &c., should be seized as soon as possible. When the commander of the support arrives he opens them and returns any of no military interest, transmitting the remainder; if the clerks wish it, he gives them a certificate to say he has taken the letters.

Houses should be searched by men in groups of at least two, one to remain at the entrance, and, if possible, they ought to be able to communicate by speaking.

If there is reason to think that the locality is occupied, the first thing is to approach as close as possible without delay.

The commander, therefore, halts the support under cover, and the advanced party endeavour to work up to and round the place in order to penetrate the enemy's strength and dispositions. If the place is occupied there will usually be a reserve close to the exit

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on the far side, and often the ground will admit of one or two men creeping right round unobserved and finding out if this is the case; this reserve is more easily detected than an enemy *in* the village.

If they succeed, the result of their observations is much more valuable than anything that can be got by drawing fire, which would only show, as a rule, that the place *is* occupied.

Whilst the commander is questioning the inhabitants, the support halts on the near side, the advanced party watching the approaches on the far side. When he has finished, it trots through the village, and the parties in advance regain their distance also at a trot.

In searching localities on the line of march, care must be taken that the advance of the rest of the advanced guard and the main body is not thereby delayed. The advanced groups must therefore trot on in time to examine places which cannot be passed without being searched.

Woods.—In woods the centre group of the advanced party follows the main road, and the flank groups ride round the outskirts, if the wood is not too large. If the size of the wood renders it necessary, the commander of the support sends a couple of men to ride between the groups of the advanced party.

When the far edge is reached the parties must look carefully round before debouching.

Very large woods should be explored for a distance of 200 or 300 yards on each side of the road.

Defile.—The course to be pursued is much the same as with villages. If there is reason to suppose the defile unoccupied, the different parties pass it at a trot, the advanced party proceeding as quickly as possible on reaching the far side to any spot from which a view can be obtained. The crest of the defile, if it is formed by high ground, should always be searched by scouts rather in advance of the advanced party.

Information Regarding the Enemy.

There are three means by which this is obtained—

(*a*) Traces left by the enemy.

(*b*) Intelligence afforded by questioning, &c.

(*c*) Personal observation on meeting the enemy.

Clouds of dust.—If the dust cloud is thick and low it indicates Infantry. Cavalry raise a cloud just the contrary, viz., high and thin. If the cloud is broken it indicates Artillery or Train. The length of the cloud enables the probable strength to be estimated, and also the direction of march; the influence of the wind, if there is any, must be taken into consideration.

Bivouac Fires.—The position and strength of an enemy can be estimated from the number and extent of the fires. If the flames appear and disappear it is a sign that the ground is occupied, as this is probably caused by men moving between the observer and the fires.

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If there is an unusual number of fires it is probable that the enemy means to retreat, and has merely lit the extra fires as a ruse. Similarly, if there is much smoke at an unusual time, the enemy is probably cooking prior to moving off.

Tracks, Noises, &c.— Dogs barking, horses neighing, an unusual amount of smoke from chimneys, are all signs of the presence of troops in inhabited localities. Much may be gathered from tracks on the road; for example, if the ground is evenly beaten down, the column consisted of Infantry alone; hoof and wagon tracts argue the probability of Cavalry and Artillery.

If the tracks occupy only half the road, the column was on the march, and possibly not a strong force; if, on the other hand, the ground is trodden down on both sides of the road, the force was more or less in fighting formation, and probably of considerable strength.

Deserted camping grounds.—The number of fire-places, and the length and breadth of the ground occupied, enable the strength of the force to be estimated. Articles of equipment found lying about, buttons, papers, dead horses, ammunition, &c., will show the arm to which the troops belonged. During a pursuit such traces will often enable valuable inferences to be drawn as to the nature of the retreat and the state of the enemy's discipline and morale.

Intelligence Afforded by Questioning, &c.

Information regarding an enemy is rarely wanting in war; the difficulty generally is to distinguish between what is true and what is the reverse. The leader of the support will rarely have time to thoroughly question and sift the answers received from the prisoners, deserters, country people, &c., but those apparently having something to tell worth listening to about the enemy should be sent to the commander of the advanced guard, with a report as to how far they seem to be telling the truth.

In order to arrive at the truth, in spite of ignorance, real or pretended, the method of putting questions must be suitably adapted to the individual questioned. All statements, from whatever source, must be carefully compared one with another The statements of the inhabitants regarding the passibility or othewise of defiles, rivers, &c., should not be received, as a rule, without testing their correctness, as, in many cases, through ignorance, real or pretended, they lead one astray. The main sources of information are newspapers, telegraph and railway registers, private letters, requisition forms, papers left behind by accident; these latter, however, are often left with the intention that they should be found and mislead. Municipal authorities, post, telegraph, and railway officials, clergymen, gamekeepers, &c., should be questioned as to the presence of the enemy, direction of march, strength and arm, what numbers were on the buttons or shoulder straps, the uniform, whether they bivouacked, or were billeted, what hour they marched at, whether outposts were placed and where, whether patrols were

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sent out, and if so, how often and where to, the roads they took going and returning, what questions they asked, and whether they always went out or arrived at the same hour, the state and general character of the road leading to the enemy, and if there are any obstructions on it.

All individuals should be questioned separately and out of hearing of each other, as from discrepancies in the answers the truth may be got at. Deserters and prisoners should be questioned separately, immediately they give themselves up, as they are more likely to tell the truth when they have not had time to concoct a story. They should be asked regarding the number or name of their regiment and company, strength of the same, name of officer commanding the corps, brigade, division, and army corps to which they belong, whether they have been bivouacking or billeted, position of the outposts, the number of sick and wounded, and whether their rations were regularly served out.

The above are all matters of the greatest importance for the head-quarters, and it is from prisoners that the surest and most reliable information can be obtained.

Meeting the Enemy.

On any group of the advanced party discovering the enemy it conceals itself, reports immediately, and does not let the enemy out of sight. The other groups are warned by signs so that they may take part in the observation, all endeavouring to reach any cover in the vicinity and prosecute their observations from it; if necessary, they take off their head-dress.

Under no circumstances is the advanced party to attack an enemy unless it has received special orders to do so, and least of all should they fire. To fire is the greatest fault that can be committed! it is only permissible when there is no other means of warning the advanced guard of imminent danger in time. Firing renders all further observation impossible, and prevents the leader acting according to his instructions, or having time to make his arrangements.

In peace, during manœuvers, &c., it is impossible to insist too strongly on the axioms that the advanced party never attacks and never fires first, and that it always endeavours to conceal itself and observe.

Immediately the leader of the support learns the presence of the enemy he goes to the front, after first handing over the command to the next senior, and directing him to take up a position, which as far as possible, is hidden from view and covers the road, and will enable the offensive to be taken in case of necessity.

On arrival at the front, if he can get a view of the situation, he must make up his mind quickly how he will act, according to the circumstances and the spirit of his instructions. If the principal object is observation, he will endeavour to reach, undiscovered, some spot from which he can get the best view.

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This, naturally, can only be done supposing the enemy is distant and not advancing.

If he considers that his instructions warrant his attacking and making prisoners, he should make a rapid flank attack, combined if possible, with a surprise; a dip in the ground, or other cover properly utilized, will often facilitate this. If the fore-ground is not favorable, and the enemy is advancing, a success may be obtained by a pretended retreat, or lying in ambush. The leader must, however, in all cases, take care to inform the commander of the reserve, in plenty of time, of the situation, the strength of the enemy, and his own plan of action, in order that the latter may be able to co-operate. If, on the other hand, the enemy surprises the support, and this can only happen through the negligence or bad management of the advanced party and flankers, the leader, without any regard to the strength of the enemy, attacks at once.

An immediate and energetic charge is absolutely necessary so as to enable the troops in rear to form for action.

Reconnaissance of the Main Road, Surrounding Country, &c.

The power of forming a *quick* and correct estimate of the country passed through is a very necessary qualification for an officer with the support. He cannot halt to make his observations, as he would be able to do on a regular reconnaissance, owing to the delay that would thus be entailed on the troops in rear.

The three main points to which he directs his attention are—

1. *The road;* its state, bridges, fords, embankments, woods, &c. If any obstacles to the march exist, he must not only report their nature, but any way of turning them, also any provisional steps he may be able to take to overcome the difficulty. It is obvious that the leader of the support has not the means at his disposal of clearing away any serious obstruction, and it is for this reason that a party of Engineers always forms a portion of the advanced guard of a mixed force. On arriving at an obstruction, for instance a broken bridge, the flankers go up and down the stream to see if they can find a crossing, one or two men try the depth to see if it is fordable, the remainder maintaining a look-out, while, if there is a village or farm in the vicinity, labour and material are requisitioned, so as to have them ready for the Engineers on their arrival. The leader of the advanced guard now despatches his report, and, if a means of crossing has been discovered, the support and advanced party march on, leaving a non-commissioned officer and a couple of men behind to see that the requisition is complied with.
2. *Supplies.* No special steps need be taken in this matter, unless instructions are given to do so. For instance, if a

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halt is to be made on reaching a certain place, the leader of the advanced guard will, on arrival, take steps through the mayor, or other personage, to secure provisions, forage, &c. He will report how far he is successful, and never omit to mention the facilities with regard to water and where it is to be found. He will then march on, leaving a non-commissioned officer and a couple of men to see the orders complied with, and place temporary outposts in a suitable position beyond the locality (see Halts).

3. *The Surrounding Country, Positions, &c.* This is rather the business of the staff officer with the advanced guard than of its leader; still the latter will often have to direct his attention to it. For example, if the enemy is met, and he is able to reconnoitre his position, he should be able to point out the best line of attack, &c. Further, at the end of a march he may have to look out for a suitable bivouac ground, &c.

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REAR GUARD.

When a force retires before the enemy, the rear guard covers and protects its retreat and consequently must be of a strength sufficient to carry out its rôle independently.

It is composed of all arms in proportion suitable to the circumstances, and is disposed according to the proximity of the enemy and his attitude; if the latter does not press very closely in pursuit, and the rear guard is consequently not obliged to march, either as a whole or in part, ready for action, the disposition, distances, and measures for security will be similar to those laid down for the advanced guard, only in reverse order.

As regards the distance from the main body, the commander of the rear guard must be guided by two main considerations; he must not allow himself to be either thrown back on the main body, or cut off from it.

No task is so difficult as that of the commander of a rear guard. He must possess the faculty of knowing when, where, and how long to make a stand, and so arrange his retreat that when he falls back he not only retires, but, as it were, disappears.

If he falls into the error of trying to dispute every inch of ground, he will lose time, and, whilst he is allowing the enemy to hold him in front, the latter will turn and cut him off.

Formation of the Rear Guard.

The rear guard is formed into separate parties, exactly like the advanced guard, and the order of march is that of the latter reversed.

A squadron detailed for the rear guard is told off in exactly the same manner as for the advanced guard; on the order to march, however, being received, the support and rear party, &c., gain their distance by allowing the rest of the force to march off; the flanking patrols move off at once.

All details regarding the method of watching the enemy and conducting their other duties as laid down for the advanced party are equally applicable to the rear party.

Special care must be taken in the choice of the flanking patrols and the direction they are to follow, as on them falls the task of detecting the turning movements the enemy is sure to undertake.

The Commander of the Rear Guard.

His duties are—

1. To watch the enemy, and especially any turning movements.
2. To delay the advance of the enemy by every means in his power, and prevent his forcing the rear guard to fight against its will, or overlooking the latter's movements.
3. To protect parties employed in carrying out the destruction of roads, bridges, &c., by keeping watch on the enemy, and, if necessary, acting offensively; for instance, by laying an

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ambush for him, or making short bold attacks. The end to be attained is not only to protect the working parties, but also to make the enemy cautious, delay his advance, and procure time for the main body to continue its march. The offensive movements must be short and sharp, and, as soon as completed, the retreat must be rapidly continued, otherwise there will be a danger of being cut off.

4. Whenever possible, and time permits, to create obstacles by destroying bridges, removing ferries, erecting barricades, &c., with the help of requisitioned labour. Obviously, time will rarely permit of such operations being commenced and carried out by the support and rear party; it is the duty of the main body and reserve to make these arrangements, and detail the parties to carry them out, but the support and rear party will often have to put the finishing stroke to the work.
5. Never to leave stragglers, sick, or wounded behind; for the latter, carts or waggons should be requisitioned; if this is not possible, the names and regiment of those left behind should be taken, and the men handed over to the care of the municipal authorities. Every effort must be made to bring on abandoned stores, equipments, &c., by requisitioning horses and waggons for this purpose; if this cannot be done, they should be destroyed rather than allowed to fall into the enemy's hands.
6. If the main body halts, to take up a position under cover, facing the enemy, so as to watch his movements, and charge if necessary.

Defiles.

If a defile, such as a bridge, causeway, or wood has to be passed, the reserve take up a position on the near side; the remainder withdraw under cover of this improvised bridge head, and themselves form up on reaching the far side in order to cover the retreat of the reserve. If the rear guard is composed of all three arms, the Infantry and a proportion of Artillery form the bridge head, and allow the Cavalry and Artillery to retire, the latter taking up a position on the far side to cover the withdrawal of the Infantry. Villages should be passed by Cavalry and Artillery in a similar manner, if they cannot be turned. If the retiring force consists of Cavalry alone, the retreat must be covered by dismounted men on the far side of the passage.

The chief duty of the Cavalry on a retreat is never to lose the touch. The greater portion of it should move well on the flanks, with a view of parrying the turning movements that the enemy are sure to attempt; only the amount absolutely required marching on the main line of retreat.

Maintenance of the Touch.

The duty of maintaining the touch is by no means an easy one, especially if the enemy's pursuit is slack, as the distance between

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the Cavalry and the rest of the rear guard becomes dangerously great. The whole of the available Cavalry must, under these circumstances, be concentrated to make an offensive return, in order to ascertain, either by taking prisoners or driving the enemy in, the reason the pursuit is not vigorously prosecuted.

Officers' patrols must be freely employed to ascertain whether the enemy is pursuing with strong columns of all arms, or weak ones composed of Cavalry alone, as, in the latter case, by taking advantage of the screen thus formed, his main body may be either halted, or have marched off in a totally different direction.

To carry out such reconnaissances, the patrols must make very long detours, and it is the most difficult duty they can be employed on.

If the pursuit is vigorous, the task of the Cavalry is much simpler.

Obstructions to the March of the Enemy.

These must be both active and passive; in the former case, a skilful utilizitation of the ground is the chief element; in the latter, time, materials, and labour.

For *active obstruction*, defiles that cannot be turned *unobserved* form the most suitable ground. All defiles can be turned if the turning movement is sufficiently extensive, but even in that case the object of the rear guard is attained by the delay caused.

The entry to a defile should not be obstinately disputed, as, in case of a reverse, the result must be a complete rout. As much show should be made as possible with a few troops, so as to oblige the enemy to deploy and waste time in reconnoitering; if he then advances to the attack, the troops should retire as quickly as possible and not wait for the attack.

The skill, firmness, and coolness necessary to carry out this operation are very great; everything depends on showing a bold front up to a certain moment, and not a minute longer. All arrangements regarding the retirement must be most carefully made, as regards length of columns, rate of march, &c. The object to be attained is not only to retire, but to disappear just as the enemy having reconnoitred the position and made all his arrangements is about to attack.

The enemy can be best delayed when attempting to debouch from a defile by attacking him in front and flank before he has time to deploy more than the head of his column; he should not however, be attacked until a force has issued sufficient to be worth beating; but, at the same time not strong enough to have a chance of success.

During a retreat dismounted Cavalry will often be able to render invaluable service.

Passive obstruction is attained by destroying bridges, or rendering them impassable; for example, if the roadway consists of planks they should be loosened, and removed altogether after

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the passage of the rear party, or the bridge may be burnt, or if of stone or iron, blown up.

Gateways, narrow roads, &c., should be blocked up by locking together waggons (if possible filled with rubbish, manure, &c.) and removing one or more of the wheels.

Fords are rendered impassable by throwing in ploughs, harrows, &c.

Boats should be removed to the far side of the river from the enemy, and sunk.

Villages, woods, houses, if the circumstances demand it, should be set on fire by the support and rear party after they have passed them.

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3.—HALTS.

In principle, it is the advanced (rear) guard which furnishes the outposts, at any rate until they can be relieved, if necessary, by fresher troops; during a temporary halt, therefore, the various fractions of the advanced (rear) party at once form themselves into detached posts, placing vedettes and sending out patrols to the front and flanks. If the halt is for the night they act in a similar manner until the regular outposts are placed.

The distance between the halting place of the advanced (rear) guard and the force covered is based on the following considerations:—

1. Time required for reports to reach the main body.
2. Time required for the necessary orders to be issued and reach the troops.
3. Time required for the troops to turn out, and for the most distant to reach the alarm post.

To avoid mistakes, no allowance should be made for the amount of resistance that can be offered for the advanced (rear) guard, but it should be so far off that the time taken by it to fall back should correspond with that calculated above as necessary to put the main body into position.

During a retreat the time required for the various columns to file off, after reaching the alarm post, calculated on the length of the longest column, must be allowed in addition to the above.

Consequently the distance between a rear guard, and the body it covers, when halted, will be greater than between an advanced guard and the main body.

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Lecture X.

CAVALRY OUTPOSTS.

General Observations.

Outposts are the detachments by means of which the main body, when halted, is enabled to obtain that absolute repose and security from surprise which are necessary for the maintenance of its efficiency.

This end is attained by checking any attack of the enemy long enough to enable the main body to prepare for action, preventing reconnaissances on the part of the enemy, ensuring a feeling of security from surprise, and obtaining such information about the enemy as may be necessary for carrying out the foregoing duties.

The duties to be performed are exceedingly harassing, consequently the fewer troops that can be employed, consistently with the object in view, the better.

This economy in numbers can only be obtained, (*a*) By a judicious combination and mutual co-operation of the different arms. (*b*) By selecting the best line possible under the circumstances, and assigning to each arm that portion of the line and those duties for which it is best suited.

Outposts consist essentially of—

1st. A stationary and defensive line, or lines, capable of affording a certain amount of resistance, and occupying advanced positions barring the enemy's lines of approach.

2nd. A line of observation and information, which watches the various lines of approach, and reports on the movements of the enemy and his position.

The strength of the outposts varies with the nature of the country, the character and nearness of the enemy, and the strength of the main body, a very small force requiring relatively stronger outposts than a large one, but they would not ordinarily exceed 1/6 or 1/5 of the main body.

Outposts are generally composed of cavalry and infantry, and exceptionally of artillery. This latter arm is only employed when some important piece of ground, such as a defile, has to be defended; its place is almost invariably with the reserve, under the immediate orders of the officer commanding the outposts.

It is only rarely, and then at a considerable distance from the enemy's main force, that the Cavalry will be able to thoroughly perform these duties without the co-operation of the infantry, and the occasions upon which infantry alone can properly perform them are even more exceptional.

When, therefore, in peace time, a mixed garrison affords the opportunity of practising outpost duty with the two arms combined, advantage should be taken of it.

The relative proportion of cavalry and infantry, and the method of employing them, depend on whether the stationary or the

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mobile element is called upon to play the more important rôle. In a very enclosed country with numerous lines of approach, in close contact with the enemy, by night, or in foggy, snowy weather, the former will predominate and the chief work will fall on the infantry; whilst in an open country, by day, most of the work will be done by the cavalry; but under all circumstances, both by day and night except during seige operations, the patrolling and reconnoitring must be done by the cavalry.

Infantry outposts should always have 2 to 4 cavalry orderlies with each piquet and support to carry reports and, if specially ordered, to patrol.

In many cases it may be advisable to push cavalry as far forward as possible, giving it perfect freedom of action. Its orders will be to march when the enemy marches, halt when he halts, and never lose touch of him; under these circumstances the cavalry must itself provide that element of resistance which is usually furnished by the infantry, and fall back on the latter if driven in. The cavalry must keep the regular outposts acquainted with its movements.

During active operations, when the army is advancing, the outposts are not withdrawn until, at any rate, the leading portion of the advanced guard has passed well beyond the outpost line. After withdrawal they form flank detachments, or else join the main column, as may be directed.

During a retreat they hold their ground, as a rule, as long as possible, in order to deceive the enemy and give the remainder of the force time to get well on the road. In such case the outposts will, as a rule, form the rear guard.

The outposts, when falling back, preparatory to joining the column, must always cover their withdrawal with patrols.

When the force remains stationary the outposts are relieved at daybreak, so as to have a double force at hand at this hour, it being the time at which attacks are generally made.

After a march the outposts are put out under cover of the screen formed by the advanced (rear) party, flankers, &c., of the advanced (rear) guard, and by patrols sent out by each piquet; after an action, under that formed by the troops immediately observing the enemy.

Outposts should always be furnished by complete units, and on a retreat, if possible, by troops that have not been engaged.

The general distribution of troops for outpost duty is—

1. Piquets, from which are furnished the vedettes, cossack posts, patrols, and detached posts.
2. Supports to the piquets.
3. Reserve.

Choice of Line for the Outposts and Method of Occupying it.

The line for the outposts is taken up according to

1st. The position of the troops to be covered.

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2nd. The existing circumstances as regards enemy, ground, time of day, weather.

In order to combine a certain defensive strength with a good view, it is desirable, when choosing a line for the outposts, that it should run along well defined features, such as a ridge of high land, banks of a river, far edge of a wood, &c., and that the flanks should rest either on other troops or on a natural obstacle that cannot be easily passed without its being noticed, for instance, morass or river, but never on a wood; where this is not the case they should be doubled back.

Special measures must always be taken to ensure the safety of the flanks, if they do not rest on other troops. With a small force this will be ensured by doubling the flank back, and placing a detached post there, with particular orders about patrolling; in the case of a considerable body of troops, however, a combined detachment should be specially told off to the exposed flank.

In practice it will not always be possible to secure the above advantages, and the best must be made of the ground such as it is; the chief object must always be to select, in the shortest time, a line that will do, at any rate, as a temporary measure; later on, if time permits, it can be improved upon. The most important point, under all circumstances, is to occupy or observe all the approaches by which an enemy could advance.

Whenever the outposts are furnished by a combined force, the infantry should, as far as possible, furnish all stationary posts of observation, carry out any temporary fortification, and relieve the cavalry of all duties except reconnoitring and patrolling. If the cavalry alone furnishes the outposts it must, by means of dismounted men, barricades, &c., endeavour to provide the element of resistance usually provided by the infantry.

The outpost line, if more than three miles long, or if the ground is much broken, should be divided into sections. Generally the ground observed by two piquets will form a section, and in allotting the ground, a road, ravine, wood, or village should never form the line of demarcation between one section and another, as mistakes easily arise, and they would probably not be watched by either section. As a rule, several weak piquets are preferable to a few strong ones, as the vedettes are better under control and the work of visiting and relieving them is less harassing; but power of resistance is lost if the piquets are too weak. There should be a support to at least every two or three piquets, or each section, and an examining post to each piquet.

The piquets are numbered consecutively from the right of the line. The cossack post, and double vedettes, furnished by each piquet are numbered from the right of the piquet.

A stationary line of observation is not in itself sufficient to secure the safety of the force; a concentrated advance of the enemy, especially if favoured by the ground, would break through the chain with the greatest ease, and surprise the sup-

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ports and reserve. The only means of successfully resisting such attacks and properly carrying out the duties of outposts, is by means of patrols who approach as close to the enemy's position as possible and report the moment a force leaves his outpost line. The commander of the outposts will then receive notice of the attack sufficiently early to enable him to make the dispositions necessary to repel it.

Against civilized troops the extent of front occupied should be sufficiently great to prevent an enemy, even if he turns a flank, placing himself, undiscovered, within effective artillery range, *i.e.*, 3,500 yards, of the main body. Similarly, the distance from the supports to the position occupied by the main body should not be less than 3,500 yards, in other words it should be such that the enemy will not be able to open fire on the main body before it is in position.

If the force is in the near presence of an enemy, and is to remain stationary for more than the night, the outpost line must be occupied in as complete a manner as possible, and no link in the chain omitted, whilst, on the other hand, at a considerable distance from the enemy this will not be so necessary.

March Outposts.

General Instructions are given at page 74.

During the period of daily marches and combats, the outposts will often have to be put out late in the day, possibly in the dark; it is impossible on such occasions to take up a line that commands a view, is not itself commanded, &c., nor is it necessary to attempt it, as the enemy will have no opportunity of making himself acquainted with the dispositions, and the only way he can attack in the dark is along the roads.

The main points when taking up a line late in the day, or in the dark, are—

1st. To occupy all roads and send constant patrols down them.

2nd. To send patrols to all villages in the neighbourhood; if an enemy is near he will either be found or heard of in the villages.

3rd. If there is a stream running along the front or flank, to occupy the bridges and fords, and patrol the banks; since the patrols cannot lose their way as long as they know where the stream is.

Outposts by Night.

Generally in foggy, snowy weather, the different portions of the outposts are drawn closer together, and by night their positions shifted; and whereas by day vedettes are placed on high ground, so as to get as extended a view as possible, by night they should be placed on low ground, so that they may have the advantage of the sky line to help them to distinguish anybody approaching their post. But it is the sense of hearing rather than the eyesight, which must be depended on at night, and vedettes should generally be placed on, or close to, approaches.

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At night it is advisable to send forward standing patrols beyond the line occupied by day: these patrols conceal themselves close to the probable line of approach. Nothing disconcerts a night attack, carried out in accordance with observations made during the day, more than to stumble on an enemy's post sooner than expected. When acting against an uncivilised enemy, accustomed to a life in the open, and whose senses of hearing and sight are consequently very acute, detached parties must be especially on their guard to avoid surprise.

An isolated detachment, such as a contact squadron or officer's patrol, will find its only safety consists in shifting its position after darkness sets in.

Commander of the Outposts.

All troops detailed for the outposts are under his orders, and he is responsible that every precaution is taken to ensure the security of the remainder of the force. He receives instructions regarding the general line to be taken up, what is known of the enemy, and the time required by the main body to form up, from the commander of the advanced guard.

As soon as, by help of his map, and, if necessary, riding forward to reconnoitre, he has decided on the general line, he issues orders to the troops detailed on the following points:—

1. Information regarding the enemy and country.
2. The approximate line to be taken up, the number of piquets, the positions, strength, and composition of the supports and reserve. The division of the line into sections.
3. Dispositions in case of attack, and in view of a possible retreat.
4. How often reports are to be furnished and where they are to be sent.
5. Directions regarding number of patrols, the distance they are to proceed to on the front and flanks, the roads, woods, ravines, &c., that are to be specially searched and watched. In the immediate vicinity of the enemy the distance to which the patrols are to go is not to be laid down; they must approach as close to the enemy's position as possible. If the troops are very tired, or the weather bad, the orders regarding the patrols must be very stringent, and it may be desirable to relieve the vedettes every hour.
6. Measures for securing the flanks.
7. Roads and localities that are to be barricaded or otherwise prepared for defence, lateral communications, &c., to be made, whether additional tools will be forthcoming, and if so, when and where they can be got.
8. Whether the piquets and supports may light fires. This should always be allowed unless their doing so would betray their presence to the enemy.
9. Arrangements regarding cooking, food, wood, straw, and forage. Whenever possible, the reserves should draw all supplies and cook for the piquets and supports.

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10. The parole and countersign.
11. Special officers' patrols from the reserve. Strong reconnaissances to be sent to the front and flanks shortly before daybreak. The time the outposts will be relieved. An orderly to meet the relieving troops and show the way,

In addition, if the outposts consist of a mixed force,

12. Piquets that are to be composed of cavalry and infantry.
13. Hour at which the cavalry piquets are to be relieved by the infantry. Two to four cavalry soldiers to be left with each infantry piquet.

It is desirable that the whole of the above orders should be communicated to the outposts before they march off, but as this will not always be possible without a certain delay, the commander should communicate the more important points, reserving the remainder until he inspects the line.

As soon as the line has been taken up he will inspect it, making any modification that may seem desirable; he will at the same time inspect the positions the troops will occupy at night.

These positions should be selected as early as possible so that the piquets may make themselves acquainted with the ground whilst there is still daylight, but they should not move into them till after darkness sets in.

The place of the commander of the outposts will be with the reserve, when not engaged in visiting the outposts. The name, rank, and appearance of the officer commanding the outposts should be known to all.

Piquets.

The strength of a piquet varies usually between 25 and 30, *i.e.*, half a troop, and at least one-third should be told off for patrolling, the remainder to furnish vedettes, look-out sentry, and extra patrols, according to circumstances.

As soon as an officer is detailed for piquet, he will form his party up, and after inspecting it in the manner laid down for the advanced guard, he will fall out into the serrefile rank the non-commissioned officers he may require to warn and march the reliefs, and to take charge of the reconnoitring and visiting patrols and the examining post. Men and horses which, for any reason, are not suited for detached duties at a distance from the piquet, should be told off for sentry on the piquet, but care should be taken to equalise, as far as possible, the duties to be performed. A young soldier should always be posted with an old soldier on vedette and patrol duty.

It must be remembered that each double vedette absorbs six men, each cossack post three or four; consequently a piquet of the ordinary strength cannot afford to put out more than two double vedettes or three or four cossack posts. If the piquet is on a flank it should as a rule be, if possible, 15 files strong, so as to be able to furnish a detached post under a non-commissioned officer.

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The officer in charge of the piquet having received his instructions from the commander of the outposts, and after making sure that he understands them, will march his party, preceded by advanced and flanking patrols, to about the place where he considers the piquet should stand.

On the way he must endeavour to impress the features of the ground over which he marches on his mind, so as to be prepared for any contingencies that may arise, and should warn all under his command to do the same.

On reaching the approximate position for the piquet, he halts, and sends a reconnoitring patrol in the direction of the enemy, and a visiting patrol to establish communication with the neighbouring posts; he then decides, according to the ground, whether he will observe the ground allotted to him by means of vedettes or cossack posts.

The advanced and flanking patrols continue to watch the front and flanks until the vedettes are posted.

In order to save men and horses, and have a sufficient number to spare for the important duties of reconnaissance, every effort should be made to watch the ground with as few posts as possible, consistently with the attainment of the object in view; at the same time economy in the number of the vedettes must not be carried to excess, as patrols are liable to lose their way and to be cut off.

As the vedettes should be able to see those on their right and left, and the ground lying between, so that no person can pass unobserved, 1,500 to 2,000 yards may be taken as the front a piquet with two or three vedette posts can observe in an ordinary country in fair weather, and from 300 to 600 yards may be taken as the nominal distance between the vedettes and the piquet. With a view to saving fatigue to men and horses, the piquet should be placed as near to its vedettes as can be done with safety.

The men who will probably be required for the vedette and cossack posts are then told off, together with a non-commissioned officer and two or three orderlies, and move out from the ranks; the remainder, who are to continue mounted, are placed under the charge of the second in command.

The usual method of posting vedettes is as follows:—The officer rides to the nearest elevated position in his front whence he can see the general line which his vedettes are to occupy, halting his party somewhat in rear of the line. The centre vedette will then be placed and the officer will take the men who are to watch the ground to the right and post them, while the non-commissioned officer posts the men on the left. Care must be taken that the flank vedettes are in sight of those of the neighbouring piquets. The flank vedettes of the line will usually be thrown back, and if not protected by an impassable natural obstacle, will generally be supported by a detached post in rear.

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When the country is open, and suitable eminences can be seen from the piquet, the vedettes or cossack posts may be allowed to move independently to points indicated and place themselves so that they can get a good view to the front (particularly as regards the approaches leading from the enemy), can see the vedettes on either side, and also the piquet if possible, whilst at the same time keeping themselves as much concealed as possible. At night they should be directed to post themselves on low ground rather than on high, so as to get the advantage of the sky line, or, if in the neighbourhood of a wood or village, some little distance beyond its edge.

The officer, accompanied by the non-commissioned officer, next proceeds to inspect the line the vedettes have taken up, altering it where necessary.

In addition to the general orders to vedettes (p. 84), he points out to each vedette—

1. The direction of the enemy, and what is known of his position and movements.
2. The extent of front each vedette is specially to watch.
3. The number of his post and the number and position of the posts on either side.
4. The number and position of the piquet and the way to it.
5. The position of the nearest examining post.
6. The name of the commander of the outposts.
7. The names of any villages, hills, rivers, or defiles that can be seen, and where the railways and roads lead to.
8. By night the parole and countersign.

The officer must make certain, by questioning, that the vedettes understand their instructions, and the non-commissioned officer who accompanies him must listen attentively, making notes in his pocket-book, if necessary, so that he may be able to give the information himself to the vedettes when marching reliefs.

During his inspection he will select the place for the examining post and place it, if this has not already been done.

As soon as the vedettes have been posted he withdraws the look-out men, returns to the piquet, and examines the ground in the immediate vicinity in order to see if the position of the piquet can be improved. It is desirable that the piquet should be in rear of the centre of the chain of vedettes, close to a main approach, with clear ground for action to the front and flanks, and, though easy to find for the troops in rear, still concealed from the view of the enemy. If a defile lies between the piquet and the vedettes, the former should be placed so as to be able to charge an enemy as he debouches. In addition, the spot should be level and firm so as to give the horses as much rest as possible.

Having finally settled the position of the piquet, which may generally now dismount, he posts a look-out sentry near the piquet and in such a position that he can see as many of the vedettes as possible, and prepares a sketch of his position and disposition for the commander of the outposts.

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One of the most important points is, to so regulate the service for the reconnoitring patrols, that they are able to rest. This will hardly be possible unless there are men enough for three patrols, as there should always be a patrol ready to start in case of emergency, and, in principle, the ground in front should never be without a patrol.

It is generally advisable that the patrols should not go out and come back by the same road, and that the fresh patrol should be sent out about the time the old one is expected back. If halted for 24 hours or more, the time of despatch and road to be followed must be constantly changed.

If a report is received that an enemy is advancing, or signal shots are fired, the piquet mounts, and the commander proceeds at once to the line of vedettes to see if a real attack seems probable—if the enemy is still distant the waiting patrol is sent to reconnoitre. As soon as the enemy's intentions are evident he sends word to the commander of the outposts, the support, and the neighbouring piquets. If he can do so with any chance of success, he attacks the enemy; if, however, the latter is too strong, he falls back taking care not to mask the front of the support.

It is an axiom on outpost duty that, if necessary, the smaller fractions must sacrifice themselves to protect the larger.

During the day-time, the officer in command of a piquet must never absent himself from it; that is to say, he must either be visiting the vedettes, or with the piquet. By day he selects the position for the night (which, however, is not to be taken up till after dark), makes himself acquainted with the ground in the vicinity, and constantly visits the vedettes and ascertains that they are alert and acquainted with their orders; whenever he absents himself for the above purposes, he must warn the officer or non-commissioned officer who is to command whilst he is away. During the night he will never leave the piquet.

The horses are never to be unsaddled or unbridled at night; but, during the day, when matters seem quiet, the girths should be loosened and the saddles shifted of one-third at a time. The horses' ears must be pulled, and their legs, bellies, and chests handrubbed or wisped, especially in wet weather.

All feeding and watering is to be carried out by fractions of one-third at a time, under the superintendence of a non-commissioned officer, who is responsible that no irregularities occur. The horses that are to be fed must be taken a short distance away from the others for this purpose. No horses are to be fed at daylight till the patrols return.

No man is to leave the piquet, and those not actually employed must be made to get as much rest and sleep during the day as possible, so that they may be the more alert at night.

If a fire is allowed it must be made in a concealed place.

No noise of any kind, or trumpet sounds, are allowed on piquet.

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Piquets pay no compliments, but the officer in command reports himself to any superior officer who may visit his post.

Piquets are, as a rule, relieved at daybreak. The new piquet takes its position alongside the old, and both officers proceed to relieve the vedettes together; the position now taken up is the day line, and during the relief the officer going off duty communicates everything regarding the post, in the most minute detail, to the officer who relieves him. Any special orders are to be handed over in writing. Whilst the relief is going on the reconnoitring patrols of both piquets go out together, so that the new patrols may be shown the ground, &c., by those who are acquainted with it. When the patrols return, the old piquet falls back.

During the period of daily marches, the outposts are not relieved, but stand fast until the advanced guard has passed the line, or, on a retreat, until they are ordered to fall back.

Vedettes and Cossack Posts.

Vedettes are posted either double or single, according as they are relieved from the piquet or by "cossack posts."

This latter system consists in posting the reliefs for each single vedette close to him, the party being in charge of a non-commissioned officer or of the senior soldier, and has the great advantages of economy in numbers, saving of men and horses, and concealment as regards the position of the piquet. Cossack posts are particularly suitable for situations where it would be difficult to relieve or frequently visit a vedette, or where the vedette cannot be seen from the neighbouring posts or the piquet.

Vedettes, as a general rule, are posted and remain mounted, but as they can often carry out their duties just as efficiently dismounted, the officer commanding the piquet must give orders on this point to each post.

The vedettes should be posted so as to get as good a view as practicable, and not be seen; consequently, by day, they should be posted behind a tree, wall, &c.; by night, well below a crest, so as to get the advantage of the sky line, but never close to trees, running water, or mills, as it is the sense of hearing that must be depended on at night, and the rustle caused by the wind, and the ripple of the water, would distract their attention. In bad weather, or at night, to prevent the proper direction being ost by the horses turning round, a mark, pointing towards the direction to be watched, should be made on the ground or on ome adjacent object.

The general orders for vedettes, with which all men should be acquainted before going on outpost duty, are—

1. To keep their carbines loaded and at the advance, lances at the trail with flags furled.

2. To make no unnecessary noise or movement, and allow no persons, except the commander of the outposts, the commander of the piquet, those accompanying them, and the patrols, to pass the chain or loiter about

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3. Any other persons approaching their post from any direction, by day, to be ordered to "halt," when still 30 or 40 yards distant, and directed to the examining post; if the order is not implicity complied with they are to be fired on.

4. All parties approaching the post from any direction, by night to be ordered to "halt," "advance one man," "give the parole" and "countersign." The parole and countersign are to be given up in as low a tone as practicable. Persons who do not implicitely comply with the above orders are to be fired on.

5. If any of the ground between two contiguous vedettes cannot be distinctly seen from either post, it is to be frequently patrolled by one of them, or, in the case of a cossack post, by one of the relief.

6. If a vedette wishes to draw attention to anything, he holds out his head-dress as a signal or makes some similar sign to attract the attention of the look-out sentry, when a patrol will at once be sent out from the piquet. If by any chance this is not noticed, he circles right for cavalry, left for infantry, and figure of eight for a combined force, increasing the pace according to the strength and rapidity of approach of the enemy. In the case of cossack posts the above can be more easily and effectively done by a man riding in to the piquet to report. Circling should not be employed without urgent necessity, as it disturbs the whole outpost force.

7. If any neighbouring vedettes circle, he passes it on.

8. If suddenly attacked or suprised, he fires before retiring, to attract the attention of the piquet and other vedettes; and only those vedettes fall back who are obliged to.

9. Single vedettes do not quit their post under any pretence; double vedettes only one at a time, to report, or patrol unseen ground in the chain.

10. No compliments are paid

The special orders for each post are mentioned on page 82.

Look-out Sentry on Piquet.

One man is posted dismounted by day, mounted by night, on both occasions with his carbine drawn and loaded. He reports all signals, &c., from the vedettes. He pays no compliments, and only challenges at night.

Examining Post.

This is posted on the main approach, and consists, as a rule, of the relief for the nearest vedette. It is under the charge of a selected non-commissioned officer, speaking, if possible, the language of the country; he receives special orders from the officer commanding the piquet. No persons except the commander of the outposts, the officer commanding the piquet, those accompanying them, and the patrols are to pass the chain anywhere save at the examining post. The non-commissioned officer in charge examines every individual wishing to pass

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either outwards or inwards, and gives the necessary permission, or refuses it, according to his instructions.

If a flag of truce presents itself, it must be detained at the examining post until instructions are received from superior authority, and if permission is given for it to enter the line, the individual bearing it must be first carefully blindfolded, and then led, under escort, by a circuitous route, to the commander of the outposts. No conversation, except by properly authorized persons, is to be allowed, *on any subject under any pretence*, with the individual bearing the flag of truce.

Prisoners and deserters are to be forwarded from the examining post to the Officer commanding the piquet, who, after questioning them, forwards them under an escort with a report to the commander of the outposts. They must be ordered to lay down their arms before they are allowed to approach the chain.

Detached Post.

Is usually 3 to 10 men strong under a non-commissioned officer and forms a piquet on a small scale; the regulations regarding piquets apply to it. Such a post is usually placed in echelon, in front or rear of the extreme flank of the outpost line, so as to watch some particular place or road by which the flank, supposing the latter does not rest on a natural obstacle, could be turned; or else to maintain communication between two piquets lying unusually far apart. Special instructions are given on these points to the non-commissioned officer by the commander of the piquet from which he is detached.

Visiting Patrols and Reliefs.

The former consist usually of two men; they go from time to time, generally between the reliefs, along the line of vedettes and to the neighbouring piquets, to see if all is correct. Both patrol and relief march within the chain and keep as far as possible under cover. They are not to be challenged by day. Vedettes, except in very severe weather, or when the men are much fatigued, are relieved every two hours. The relief is carried out exactly in the same way as for an ordinary post, except that whilst the relief is going on one man maintains the look-out and the remainder keep concealed as far as possible.

With cossack posts the reliefs can always be carried out every hour if desirable.

Reconnoitring Patrols.

Consist of 2 or 3 men under a non-commissioned officer; they are employed beyond the chain of vedettes to reconnoitre the ground and the enemy. No grey horses, except in rainy, foggy, or snowy weather, or those that neigh, are to be sent, and both men and horses should be specially chosen for this duty. They must take steps to prevent their arms and accoutrements rattling or glittering in the sunlight.

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The officer commanding the piquet gives each patrol its orders on the following points:—

1. How far it is to go; if in the immediate presence of an enemy this is not necessary, as the patrols always approach as close to the enemy's line as possible.
2. The road or general direction they are to follow going and returning.
3. The ground they are particularly anxious to examine.
4. About what time he will expect them back.

By day they will avoid main roads and inhabited localities, moving under cover as far as possible. They must often halt, behind cover, to observe the ground, so that they may act as guides if required; also to see if they can discover the enemy.

If an enemy's patrol is seen, they hide themselves and watch its movements. If a friendly patrol is met, they do not challenge, but inform each other of what each has seen; before doing so, however, they should get under cover. If they observe a considerable body of troops leave the enemy's line, one man rides in at once to report, the remainder keeping under cover and continuing to observe their movements.

In a broken country they may be much assisted by watching if their horses prick their ears or start, as they generally become aware of the vicinity of other horses or men, especially if they are partially concealed, before their presence is noticed by their riders. At night one man should often dismount and place his ear to the ground, as the sound of horses or men on the move travels along the ground much further than through the air; the barking of dogs is often also a sign of strangers being about.

They must remember that their duty is to observe, and not to fight, and fighting must always be avoided unless they are ordered to make prisoners or are surprised.

When returning they should often halt, under cover, at the turnings of roads, &c., to make sure they are not being followed. It may often be practicable to get right up to the enemy's line by judiciously following a patrol that is returning. If a patrol succeeds in approaching the enemy's line, it conceals itself, and endeavours to ascertain—

1. How many vedettes the enemy has put out, and where they are placed. The most favourable opportunity for ascertaining this is when the relief is going round.
2. The nature of the ground in front of, and between the vedettes, as to whether it affords a fair chance of cutting one of them off or surprising the piquet.
3. The time the enemy sends out patrols, their strength, and the general direction they follow.

By night they should endeavour to overhear the parole and countersigns, and find out the main position by observing the watch fires. To do this it may often be advisable to let a man dismount and creep up as close as possible so as to avoid the noise of the horses' hoofs betraying their presence.

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With weak piquets the reconnoitring patrols may combine the duties of visiting patrols with their own.

Supports.

In a combined force they are usually furnished by the infantry. It depends on circumstances whether they are furnished both by day and night, or only at night. In the case of cavalry alone, they are formed of the remainder of the squadrons which have furnished the piquet or piquets. A look-out sentry is placed, the roads barricaded, and other temporary fortification resorted to when practicable, to replace as far as possible the defensive element furnished by infantry. The relative position of the support with regard to the piquets of that section is analogous to that of the piquets of the vedettes, and the same points are desirable in selecting a place for it. The regulations regarding cooking, feeding, watering, &c., laid down for the piquets apply equally to the supports.

Visiting patrols should be frequently sent from the support to the piquets, and a patrol should always be ready to march and ascertain the cause of any shot being fired, or any stir that may be noticed in the piquets.

The Reserve of the Outposts

Is under the immediate orders of the commander of the outposts, and forms the force by means of which an enemy's attack is to be principally repelled, and from which, in case of necessity, the more advanced posts are strengthened. With a combined force the remainder of the squadron furnishing the piquets will be with the reserve, and provide two or three orderlies for each infantry post to carry reports; the employment of these men for any other purpose is absolutely forbidden. Any special patrol will also be furnished by the squadron If there is artillery to defend a particular defile, the guns are to be in position ready to fire; in all other cases they are to be unlimbered to the main approach; under no circumstances are they to be placed in an enclosed spot.

Sentries are put out and patrols sent in such numbers as may be necessary. The regulations regarding trumpet calls, feeding, watering, &c., laid down for the piquets are equally applicable to the reserve; the men, however, are to cook, not only their own food, and draw wood, straw, &c., for their own use, but are always to perform these duties for the piquets, and if possible, also for the supports.

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Lecture XI.

SCREENING AND RECONNOITRING OF CAVALRY IN ADVANCE OF AN ARMY.

The real value of screening can be best appreciated by recalling one or two instances of what has occurred, even in modern war, when from ignorance of the true use of cavalry or from other causes, cavalry screens were either not employed or were temporarily thrown out by unexpected events. For instance—

In the campaign of 1859, a French army of 124,500 infantry, 10,700 cavalry and 300 guns, and an Austrian army of 146,000 infantry, 15,000 cavalry and nearly 700 guns, actually encountered each other in full march at Solferino, neither having had the slightest knowledge of the vicinity of the other. Hamley.

Again, in the campaign of 1866, we read that on the night before the battle of Königgratz, in which more than 400,000 men were engaged,

The outposts of the two armies faced each other within a distance of four-and-a-half-miles, without either army suspecting the near and concentrated presence of the other. German Official Account.

Again, in the campaign of 1870, we read:—

A survey of the positions of the opposed forces on the evening of the 25th of August, shows on the right flank of the German army moving *westward*, and only two days' march to the north of it, a French army of 150,000 men advancing *eastward*, the movements and intentions of which were as yet still unknown to its adversary.

In this latter case the Germans had a cavalry screen, "but the retreat of the French from Alsace, accelerated by the assistance of the railways, had broken the contact with the enemy after the battle of Wörth."

THE CAVALRY DIVISION OR BRIGADE COVERING THE ARMY.

The rôle of an independent cavalry Division or brigade consists in concealing the movements of its own army whilst endeavouring to discover those of the enemy, thus forming the strategical advanced (or rear) guard of the force it covers; but it must not be supposed, because a Division or brigade of cavalry is acting

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in front or (rear), that the army can therefore dispense with advanced (or rear) guards. The importance of this service remains the same and must be strictly carried out.

Each brigade or regiment moving by a separate road must have its own advanced guard, and these must keep up communication with each other.

As a rule the Division or brigade will be ordered to attach itself to a particular body of the enemy, or to watch a particular piece of country.

In both cases it is necessary—

1. To discover the enemy.
2. Not to lose the touch when obtained.
3. To avoid being beaten in detail or the line being forced.
4. To retain the power of assuming the offensive.

To attain the above ends the easy and rapid concentration of the main body is a matter of vital importance, and consequently, detachments of a greater strength than a squadron must be avoided. The force will be divided into two main parts, the normal order of march being—

1. Contact squadrons, and officers' patrols, pushed as far forward as possible to maintain or seek to establish touch with the enemy.
2. The main body with the usual advanced and rear guards on one or two roads, concentrated, and ready for action; only the number of connecting posts absolutely necessary to be allowed.

The cavalry Division or brigade regulates its movements by those of the enemy, consequently its distance from the main body cannot be laid down in any way.

The front that can be covered by a Division varies according to the ground, the strength, character and proximity of the enemy.

Against civilised troops, and in a cultivated country, the normal front that can be covered without undue extension is from 10 to 12 miles. To cover a wider front, and to echelon the force more in depth than the usual advanced and rear guards, is to render it liable to be beaten in detail.

The exact formation to be adopted must be left to the commander of the independent cavalry. While at a distance from the enemy, contact squadrons can be pushed further forward, extended over a wider front, and allowed more complete in-

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dependence of the Division or brigade than when the enemy is within striking distance. In the latter case the main body, must be brought closer to the advanced squadrons in order to give them the support they may require to enable them to attain their object.

Information regarding the enemy may be obtained most easily, and with the least expenditure of force, by the employment of well mounted officers, accompanied by a few selected men.

Officers detached for the above purpose may be left to watch the enemy, or particular localities, for a considerable time, only rejoining when forced to by the enemy, or by their mission being accomplished.

When, however, the enemy by his alertness or numbers prevents a reconnaissance being carried out by small parties, it may become necessary to break through his line.

The contact once established should never be lost. The Division or brigade follows the enemy with its contact squadrons, following his movements step by step, whilst officers' reconnoitring parties endeavour to hang on his flanks and rear.

An independent cavalry Division or brigade should never fight if it can avoid it, that is, unless the enemy's screen cannot otherwise be pierced, or with a view to establish a moral superiority.

A cavalry Division or brigade in its isolated position requires a rear guard. The rear regiment of each column will invariably tell off a rear guard of the strengh of a troop for a regiment, a squadron for a brigade. Its duties are not only to check straggling, excesses, &c., but also to see that nothing of a suspicious nature takes place in the rear. If an enemy should appear, it will attack him at once, regardless of his superiority, in order to give the nearest body of troops time to show a front. Nothing that goes on in rear should escape its notice. If clouds of dust approach, the cause must be at once ascertained. Villages, &c., must be watched for some time after the column has passed to see that no flags are hoisted on towers, windmills which were still, suddenly set going, or men mounted or in carts allowed to leave the locality by by-roads.

As to whether it is advisable to place the troops in billets or bivouacs, depends on the proximity of the enemy; but it must be remembered, that in Europe the worst billet is preferable to the best bivouac both for men and horses. In bad weather it is better to fall back a few miles, leaving sufficient force to maintain the touch, even if you have to retrace your steps the following morning, rather than bivouac, if by this means a good night's rest can be secured. At night, especially, there is less danger if surprised in billets than in a camp or bivouac. The advanced detachments will generally bivouac, the main body need rarely do so.

The following is the approximate time necessary for a march of fourteen miles when all the precautions necessary in the

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presence of an enemy are observed, and he is known to be in the neighbourhood:—

	On a good road.	On a bad road.	Under the most unfavourable conditions—snow, frost, &c.
1 Regiment or Battery H.A...	4 hours	6 hours	9 hours
Division of Cavalry ..	4 hours	7 hours	12 hours

The above is the time the head of the column will take.

Contact Squadrons.

These precede the Division or brigade with the object generally of establishing and maintaining touch of the enemy.

As the duty is most harassing, they must be frequently relieved.

Their movements are independent of the Division and depend exclusively on those of the enemy.

Their special mission consists in seizing registers and papers of every description and transmitting them; intercepting telegraphic and railway communications; destroying bridges, manufactories of arms, and convoys; occupying important defiles, so as to secure them for the passage of the force from which they are detached.

They will not be accompanied by any cart or waggon, but will carry the necessary rations and forage either on their horses or on requisitioned animals, or procure them by requisition.

Before starting they should ascertain the probable movements, for some days to come, of the body from which they are detached so as to know where to send reports; also, with a view to combined action, whether any other contact squadrons are being sent in the same direction.

They report daily as to their progress, and add what it is proposed to effect the following day and where they mean to pass the night; if the orderly carrying the report is intelligent, it is very desirable not to commit these last two points to writing.

The squadron pushes forward as many officers' and non-commissioned officers' patrols as may be necessary, and covers its own march with an advanced party and flankers, but otherwise moves as concentrated as possible. The rules for officers' patrols are equally applicable to the contact squadron, particularly as regards the precautions to be taken at night.

Officers' Patrols.

Officers' patrols have much the same duty to perform as the contact squadron, and their mode of carrying it out is analogous; the difference being that in the one case a whole squadron is employed, and in the other, only a well mounted officer accompanied by 6 to 10 selected men, and even in some cases by only 2 or 3, or, perhaps, a couple of officers by themselves, are employed. The contact squadron is employed, or the officers' patrol according to circumstances.

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The main principle is, that when long distances have to be ridden, such as would ruin a considerable body of troops if they attempted to ride them in one day, and, when the object in view can be attained by observation, and a larger force could not hope to remain undiscovered, officers' patrols are sent.

The horses composing these parties, as well as the men, must be especially chosen, as, in order to appear unexpectedly and disappear in a similar manner, and thus gain all the advantages of a surprise, they may be called on to ride 60 or 70 miles in the 24 hours. They should take biscuit and tinned meat for themselves for three days and biscuit for the horses.

The usual missions for an officers' patrol are :—

1. To ascertain the enemy's strength, position, or direction of march.
2. To convey a despatch or establish connection with some portion of the force with which there is no direct communication.
3. To reconnoitre a road, river or pass.
4. To ascertain whether the enemy is present in certain localities.

Officers' patrols may be sent out from the contact squadron, or from the Division; in the former case their mission forms a portion of the general mission of the squadron, and the duration of their absence and the distance to be ridden will probably be much less than in the latter, in which they receive a special mission.

As a rule these patrols will find their only chance of safety at night is to shift their position after dark and pass the night in a wood, taking care to see that they are not watched when entering it; if, however, a solitary house can be found to pass the night in, they should not enter it till night-fall, first surrounding it to prevent any of the inhabitants leaving and giving information; they should then make the chief person responsible that they are not attacked, and take some members of the family as hostages.

These latter must be well treated, but given to understand that they will suffer in case of an attack.

Steps must be taken to facilitate escape by the back, through gardens, &c., in case of necessity, and the party must pass the night in the stables with their horses.

As officers and men run a great risk of falling into the enemy's hands, they should have no papers about them containing information regarding the force to which they belong; especially is this the case with any diary that they may keep for their private amusement.

It is desirable that they should, after carefully reading and committing to memory the instructions they receive, destroy them,

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Advanced Scouts.

In order to carry out their duties with secrecy and the least expenditure of force, it will frequently be necessary for patrols, especially if they are strong and the chief object is to maintain contact with the enemy, to detach advanced scouts, who will work usually in pairs. The commander of a patrol should not let his advanced scouts separate themselves very far from the patrol or for a very long time, but they must be allowed great freedom and independence of action. The general rules regarding the conduct of the groups of the advanced party of an advanced guard, the method of examining localities, gaining intelligence and maintaining the touch of the enemy, laid down in S. 1, apply equally to advanced scouts and patrols.

Reconnoitring Formation of a Single Regiment.

When a single regiment is employed to cover the strategical march of a considerable force and to reconnoitre an enemy, it is evident that, owing to the wide front over which it must necessarily be extended, it will possess but little power of resistance, and this disadvantage must be compensated for, as far as possible, by so disposing of the squadrons as to ensure the early acquisition and rapid transmission to the main body of information regarding the enemy.

A regiment thus employed may be at a distance of 10 or 15 miles from the force which it covers. From it one squadron moves several miles further to the front, two others are extended 1½ to 3 miles to the right or left of it, while the fourth remains in support, following the centre squadron at a few miles distance. Each of the three advanced contact squadrons, providing for its immediate security by a small advanced guard and flankers, is now arranged for the systematic reconnaissance of that part of the country which it is ordered to explore. Officers' or non-commissioned officers' patrols of six or more men are sent out to the front and flanks, while the rest of the squadron, from a third to a half, moves along a central route. The distance of the advanced squadrons from the support, and their intervals from each other, will depend upon the nature of the country, the direction of the roads, and the proximity and force of the enemy. The squadrons will generally be extended as far as possible, in order that too many men may not be employed on the service, and the distance and intervals should be such that the different bodies may be able to receive support in case of encounter with hostile forces. In open country and on good roads the patrols may be pushed 5 or 6 miles in advance of their squadrons, but when they come in contact with the enemy, they can either fall back, if necessary, to receive support, still preserving the touch of the enemy, or the contact squadrons can be brought closer to them, as may seem most advisable. From the patrols sent out by the squadrons, small scouting parties (advanced scouts) of two or three men may be again detached, in order to thoroughly search the country.

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Although constant connection by sight or hearing is not necessarily to be maintained between all the parties and men employed, there should be constant means of communication, so that information and orders may be readily transmitted. It will frequently be necessary for scouts and patrols to move at considerable distances from their squadron, or for one of the contact squadrons to separate itself far from the supporting squadron, in order to carry out the duties entrusted to them; but each patrol should know the general position of the patrols on its right and left, and where its own squadron is to be found; and each contact squadron should also know where the neighbouring squadrons and the support are. Scouts ride in to their patrols with information, and these similarly send in information to their squadrons. The squadrons communicate with each other laterally, either by communicating posts or communicating patrols, and connecting posts will be established between the supporting squadron and the main body, and, if necessary, between the advanced squadrons and the support.

Connecting Posts.

Connecting posts are employed to facilitate the keeping up of communication between detached bodies of cavalry and the force in rear which they are covering or acting in concert with.

The number of posts depends, principally, on the number of suitable houses, or other well marked and easy recognisable spots on the road. As a rule they should be about five miles apart.

With a large number of despatches two men may be away at the same time in each direction, or possibly, owing to circumstances, it is not advisable to let the men go singly; therefore as the post itself must never be left quite deserted, the best number for a post, as a rule, is one non-commissioned officer and six men. If the posts are more than five miles apart they must be stronger. One officer should superintend four posts, whenever an officer can be spared for this duty.

With very few men at one's disposal, and when the country is very hostile, the posts may have to be made up to half a troop, and placed far apart, and, if they are left entirely to their own resources for protection, they must, shortly before dusk, leave the post, and pass the night elsewhere, stationing men on the road to look out for despatches.

The house or other place chosen should be on the high road, close to a bridge or some other place that must be passed, and it should be marked by a bundle of hay or straw on a pole by day, and by a lantern at night.

The villagers, &c., must be held responsible for the safety of the post, and warned, that if anything happens to it, severe measures of reprisal will be taken; the post, however, must also take measures to protect itself. A sentry must always be posted on the stable and a lantern kept burning all night.

Two horses are always to be kept ready to start immediately.

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The commander of the post gives each orderly clear directions regarding his road and the pace he is to travel at. On reaching the next post he receives a receipt for the despatch carried. If there is any delay in forwarding a despatch, or if it is lost, the authority sending it must be at once informed.

The orderlies are always to carry the despatch on their persons, so that in case anything happens to the horse the despatch may be safe. In order to avoid the writing becoming illegible through wet, &c., important despatches sent in this manner should be enclosed in *two* envelopes.

Communicating Posts.

These may be either fixed or temporary, and generally consist of three men. They are employed to keep up lateral communication between squadrons when detached for reconnaissance, or between parallel columns on the march, and are placed at points well marked on the map and easily found, on or between the routes to be taken by squadrons Their position should, whenever possible, be decided on by the leaders before starting. One man of the post should always be ready to mount to carry on a message.

If these posts are not established, communication between squadrons can only be kept up by communicating patrols riding across from one squadron to another, and they will often have difficulty in finding the squadron they are despatched to.

The men should be acquainted, as far as possible, with the routes taken by their own and neighbouring squadrons.

S. 4. *Reports.*

Reports are of two kinds, verbal and written; whenever time and circumstances allow, they should be in writing.

Whenever a verbal report or message is sent, the bearer must, before he rides away, be made to repeat it and understand its nature, otherwise endless mistakes will take place, even in the simplest matters.

Connecting Post No. 3 at A.

Corporal B. Private C, D, E, F, G, A.

Date	Detail.	Arrived.			Forwarded.			Remarks.
		When.	Bearer.	From.	When.	By whom	To	
8th June 1883.	2 letters —1 to H.Q., 1 to A.Q.M.G	11 20 p.m.	Pte. X, 7th Hus	Connecting post No. 2 at W.	11.22 p.m.	Pte. E, 7th Hus	Connecting post No. 4 at M.	Private E, returned at 1.15 a.m. with receipt.

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As great delays invariably occur, the time of arrival and despatch are to be noted on the back of each envelope, in order that a better supervision may be exercised, and, in case of necessity, blame may be laid on the proper person.

Even when there are no letters to be carried, communication must take place frequently between the posts to ascertain that all is correct.

A man who has to make a verbal report, should settle beforehand what he intends to say, and should not speak in a hurry. If he sees that the person to whom he reports misunderstands him he should not hesitate to tell him so. On the other hand, a man making a report should not be questioned so as to flurry him, but should be allowed as far as possible, to tell his tale in his own way.

With regard to the form of report, the following regulations are always to be adhered to, and every officer should, if possible, be provided with a sufficient supply of forms similar to those issued in Army Book 153, and corresponding envelopes (Army Form C., 398.)

The report is to be written sufficiently legible to enable it to be read, even by the dim light of a fire.

The style is to be similar to that in which telegrams are made out, viz., concise and clear, omitting nothing of importance whilst avoiding superfluous matter.

Great care should be taken in spelling the names of places and people, which should be written in printed characters.

The individual who signs a report is responsible for the contents of his despatch; consequently the distinction between what is absolutely certain and he has himself seen, what others have seen and reported and what is supposed or inferred must be clearly drawn. He must look at facts as they really are, and not allow his imagination to run away with him, taking care neither to neglect what is important, or cause alarm needlessly.

He should, whenever practicable, convince himself by personal observation of the correctness of what he reports, and when this cannot be done, if the matter is important, he should, if possible, send the message by the individual who obtained the information or saw the occurence reported.

Reports must always be numbered consecutively; place, date, hour, minute, and signature should be invariably filled in.

Vague phrases, such as enemy, party, &c., are not permissible, but the estimated strength, formation, composition, and direction of march of columns are to be stated; right and left are only to be used with regard to the banks of rivers, looking down stream; on all other occasions the points of the compass are to be employed to indicate the position of the enemy or a locality.

Similarly, the expression "it is reported" is not to be used, but the authority for the report must be quoted: for example, "the flanking patrol on such a road reports"—"the inhabitants at —— say ——, &c., &c."

Whenever necessary to make the report clearer, a sketch should be added to it.

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Place, date, time of despatch, and pace, are to be filled in on the envelope, and the receiver having first signed his name and filled in the date, time, and place he is at, will return it to the bearer as a receipt.

As regards pace, X means trot and walk, or 6 miles an hour; XX trot the whole distance, or 8 to 10 miles in the hour; XXX as fast as possible.

In sending reports, regard must always be paid to the importance of their contents, and the security or otherwise of the road to be traversed.

If necessary they should be sent in duplicate, and even triplicate, by different roads and under suitable escort: but in many cases where the road to be traversed is unsafe, it may be advisable to send the report verbally in preference to putting it on paper. Further, as despatches may be lost, or have to be destroyed to avoid their falling into the enemy's hands, it may often be advisable to make the bearer acquainted with their contents.

When forwarding a despatch in duplicate, or triplicate, no mention should be made in the document that this is the case, as in the event of one copy falling into the hands of the enemy it would give him very valuable information, and the person to whom the reports are addressed will soon know from the number to be filled in at the right hand top corner if any have gone wrong.

As a rule, officers, especially at night, or when the distance is great, should have an escort; this is particularly the case when they are detached for the purpose of receiving orders, &c., as these latter cannot often be issued till late in the evening, and under any circumstances it cannot be foreseen at what hour they will be issued.

In Europe, an officer carrying despatches may often drive with advantage instead of riding; his escort would then be composed of two or three men who would be carried in the same or another vehicle.

S. 5. Reconnaissance.

General Observations.

Reconnaissance is generally divided into—

1. Reconnaissance of an enemy.
2. Reconnaissance of a country.

On service, however, the two generally go together.

Details regarding the reconnaissance of a country, are fully laid down in Section XI. of the "Text Book of Military Topography," consequently it is chiefly the reconnaissance of an enemy that will be dealt with in this section, attention only being called to some of the more important points in the former.

Cavalry officers will not, as a rule, be called on to carry out the reconnaissance of positions for their own troops, as that is rather the province of the Staff and Engineers; still as they will often be so situated that it would be a great advantage to employ them, they should possess the necessary knowledge.

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The reconnaissance of an enemy, of existing communications, and the task of discovering fresh ones by means of which an obstacle may be turned, will generally be carried out by cavalry.

In all reconnaissances the inhabitants should be questioned, but their statements must be compared, and, if possible, verified by personal inspection; if the latter cannot be done, it must always be so stated in the report. It does not follow, by any means, even with a friendly population, that their statements regarding the enemy, the existence and state of communications, depths of streams, &c., are correct.

Reconnaissance of an Army

Is made either in force or by employing officers' patrols alone.

The precautions customary in all armies will, as a rule, render a satisfactory reconnaissance of an enemy's position very difficult to perform; still, with good luck, it will often be possible to reach a spot, under cover, from which, by the help of a field glass, the necessary observations may be made.

In making a reconnaissance in force, the strength employed must be sufficient from the very first to attain the object in view.

The force endeavours to get as close as possible to the enemy unobserved, and as soon as its presence is detected it must act quickly and with determination, retiring as soon as it has gained its object.

The officer commanding the troops should confine himself principally to directing their movements, and entrust the actual work of seeing into the enemy's dispositions and strength to specially selected officers. The latter will endeavour to gain a point of observation, under cover, on the flank of the enemy, and, as a rule, will find that the best opportunity of carrying out their mission will be when their own troops are falling back and the enemy leaves his position to pursue.

A reconnaissance in force, however, is only of value when one is in a position to at once profit by the information obtained, as in a short time the enemy's dispositions will, in all probability, be completely altered.

Positions.—The following are the chief points to be solved:—

1. In which direction does the enemy's front face, and where, judging by the arm and distribution of the troops, so far as can be distinguished, is the most serious resistance likely to be met.
2. With what number of troops, and of what arm is the front occupied.
3. Whether the position is fortified; if so, how and where.
4. The best lines of approach for the direct attack, and positions for the batteries accompanying it.
5. Where the flanks rest, and whether they rest on impassable ground or entrenchments.

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6. The best lines of approach and positions for batteries for a flank attack.
7. If any reserves are visible behind the front or flanks, the arm and strength; whether stationary or in movement; if the latter, in which direction.
8. In the case of a defile; are the neighbouring passes occupied; if so, how. Is there any way of turning the position, and if so, whether practicable for all arms.

Columns on the March.—The important points to notice are—

(*a*) What front is the column marching on.
(*b*) Which arm is in front, as it gives the rate of march.
(*c*) Is there apparently much opening out.

A given point is passed in one minute—

By about 250 Infantry in fours.
,, 150 Cavalry in sections at a walk, or if in rear of Infantry, about 120.
,, 4 guns, if in rear of infantry
,, 260 Cavalry in sections at a trot.

If, however, the whole column can be seen, a very quick estimate can be made with the help of a map, and the following practical rule, viz.:—

1 yard for every two Infantry soldiers.
1 yard for each Cavalry soldier.
20 yards for each gun or waggon.

Care must be taken to distinguish between troops and waggons, and between the latter and guns.

An allowance, varying according to national characteristics, discipline, the state of the roads and weather, of between $\frac{1}{4}$ and $\frac{1}{2}$ of the total length of the column must, as a rule, be made for opening out.

During an Engagement.—Officers' patrols must be invariably sent well to the flanks, and, if possible, in rear of the enemy; they will report frequently, even if it is only to say that there is no sign of hostile columns in that direction. These patrols must be particularly active as evening approaches, so as to ascertain in time whether the enemy intends retreating.

Reconnaissance of a Country.

Communications.—The principal points are—

Present state of the road, with details of width, bridges, and fords. Whether any path indicated on the map has been improved into a road—or any road being allowed to fall into decay from disuse—or been blocked up altogether and a fresh communication opened up—or a perfectly new road made where none existed before.

Unbridged Rivers in view of an Offensive Crossing.—All roads in the vicinity of rivers lead to the localities where the usual

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communications from one bank to another take place! as these roads must be used by the Engineers to bring up the necessary materials—unless it can be collected in some tributary—also by the troops to effect the necessary concentration, the points chosen to throw bridges must be close to these localities, otherwise opening up and constructing the necessary approaches would take too long, and betray the design. Where the roads pass over low ground, it must be ascertained whether they are likely to become impassable in the event of rain.

Having regard to the above a report must be furnished as to the point or points for crossing recommended, giving reasons for the selection, with the following in detail:—

(*a*) Lines of approach, places under cover close by suitable for the concentration of troops, and as depôts for materials.

(*b*) Full details regarding the banks, particularly with regard to the ramps necessary for guns and horses, width and depth of river, rate of current, and bed of river close to the bank at the actual spot, landing place on far side.

(*c*) Details as far as can be ascertained regarding the enemy.

(*d*) Facilities for deployment after successful crossing particularly for Cavalry and Artillery, roads on the far side.

(*e*) Points from which the passage can be supported by Artillery.

(*f*) Number and size of boats, supply of wood, oars, rope, &c., in the vicinity.

Bridged Rivers in view of an Offensive Crossing.—Unless the enemy has withdrawn entirely to the far bank, it will only be by a combination of great daring and luck that a reconnaissance can be made except from a distance.

The chief points to be noticed are—

1. The existing bridges, whether apparently untouched, partially or completely destroyed, or prepared for demolition; the lines of approach, under cover, to these bridges; and positions for the batteries, as far forward as possible to cover the crossing.

2. Whether any ford or ferry exists which is apparently not guarded, or insufficiently so; the way to approach it under cover, and for what arms it is suitable.

3. Where the flanks of the enemy's position rest, with a view to determining whether it can be turned higher up or lower down. In this case all fords and bridges that might be utilised by the enemy for an offensive movement against the flank march must be mentioned with full details, also the points from which the roads leading to them from the enemy can be seen, and up to what point the view extends.

Undefended Rivers as an Obstacle across the Line of March.—The chief points to observe are—

1. Whether the bridges and fords shown on the map really exist and can be used for all arms, including ammunition columns.

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In reporting a ford practicable for Infantry it must always be stated if the reserve ammunition carts can also cross.

2. Whether, in addition to those shewn on the map, there are any others; if so, their position, and for what arms they are suitable.

3. The bridges and fords found more or less impassable, and whether this applies to all arms; as regards bridges, the nature of repair required, the quantity of material and labour that can be obtained in the vicinity, and where; estimate of time and labour to execute the work, must be added.

4. Any spot that seems suitable for the construction of a bridge, with full details; the material at hand and number of boats with oars that can be procured

5. Whether there is any place that the Cavalry might swim.

6. In frosty weather, if the ice will bear, search must be made for sand, ashes, dung, &c.; if, on the other hand, the frost has only just commenced, supplies of straw and brushwood will be found useful. When the ice begins to bear the weight of a man, the straw or brushwood is laid ½ foot thick with the stalks at right angles to the current, a fresh supply is then laid at right angles to the first layer, water being poured over the whole at intervals; a bridge thus constructed will bear ammunition waggons even after a thaw and when the ice itself is no longer safe.

Advanced Guard Positions.—On most occasions the action of an advanced guard is confined either to attacking a position, barring the advance, or, if forced to assume the defensive, to maintaining its ground.

It will, therefore, be rarely necessary to reconnoitre any special position unless with the object of covering the deployment of the main body after the passage of the latter through a defile.

The chief points in this latter case are—

A line with a clear field of fire, and without obstacles to a forward movement, covering the exit of the defile, and so far in advance that the movements of the main body, as it debouches, cannot be seen, or that it is at any rate not exposed to fire.

Rear Guard Positions.—The chief points in choosing a rear guard position are—

That it shall cover the line of retreat. and, if possible, hide the direction taken by the main body; obstacles along the front which, while allowing a clear field of fire, will compel the enemy to undertake long turning movements, are of especial value. In addition, if the retreat is conducted in succession.

(*a*) The second position must not be so close to the first that, in case of a disaster, the retiring troops and the enemy arrive together, and the field of fire must be sufficiently extensive and clear.

(*b*) It must, however, be close enough to permit the retiring

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troops to get under cover before the retreat becomes a rout. It is, of course, impossible to lay down exactly what this distance should be, but the effective range of Artillery on that particular piece of ground will, as a general rule, be sufficient.

(*c*) It must be sufficiently far in front of a defile to enable the retiring troops to withdraw unmolested, and take position on the far side.

S. 6. *Requisitions.*

Whenever troops leave the vicinity of railways, or precede the main body by several marches, as is often the case with cavalry, the regular issues from magazines must cease, and they must depend on the very limited supplies that can accompany them, and on what can be obtained from the inhabitants.

As the system of requisitioning easily leads to plunder, creates a hostile feeling amongst the inhabitants, and exhausts the country it is necessary that it should be carried out systematically, and the slightest excess checked at once.

Requisitions, whenever possible, should be made through the local authorities, only what is absolutely required being taken; and payment should be made, either on the spot, or by orders on the commissariat.

With an unfriendly population, it is absolutely essential that the party to carry out the requisition should arrive unexpectedly, and occupy all the outlets as quickly as possible, not only to prevent supplies being removed, but also to prevent notice of the presence of the party being given to the enemy.

A party detailed to carry out a requisition tells off about one-quarter of its strength, under an officer, to guard the outlets and carry out the object in view; as soon as all the approaches are guarded, the head local authority is sent for and the place and time for the supplies to be delivered clearly explained; one or two of the inhabitants are taken, if necessary as hostages, sentries posted over any place in which supplies are seen to exist, whilst the remainder of the party take up a suitable position in the direction of the enemy, posting look-out men, and sending out patrols; all individuals who come within the lines are to be detained till the work is finshed.

After posting the main body, the commander accompanied by a trumpeter, returns to the locality and superintends the loading of the supplies, which should have been collected in an open space. If there are no horses, but carts, &c., in the place, some of the horses of the detachment must be harnessed to them. If there are neither carts nor horses, the inhabitants must be made to carry what is required in sacks or baskets; hay, straw, &c., being tied on horses which are to be led. A horse can carry a couple of cwt., in addition to his kit.

If the locality is deserted or the authorities decline to assist, a portion of the party must be told off to search for the supplies and bring them where they are to be laden.

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The return of the party should be made by a different road to that they went by. Where there is a choice of a good road and a bad, the former should be chosen for the return journey, and if necessary, some of the inhabitants should accompany the party as hostages for a certain distance.

If the requisition has included horses and waggons, or cattle, their drivers must be made to accompany the party.

If the object of the expedition is to cut green crops, the detachment is similarly told off into a guard and a party to carry out the immediate object in view. On arriving at the place, the horses of the latter are linked; to each mower are allotted two binders, and to each man with a sickle one binder; before starting, care must be taken to provide the party with the necessary sickles and scythes, if the latter can be got.

The mowers are placed at one end of the ground, the men with the sickles at the other. If no carts accompany the party, care must be taken that the bundles are securely tied together and on to the horses, and that they are put on as soon as made up.

If the enemy is in the neighbourhood, the mowers, &c., keep their weapons by them.

In both cases, if the enemy attacks in such force as to oblige the work to be broken off, the working party retires with as much as they have secured whilst the guard covers their withdrawal.

S. 7. Escorts for Prisoners.

These are generally composed of cavalry and infantry; the latter furnishes the defensive element in case of attack, whilst a few of the former skirt the column to maintain order, the remainder providing the advanced and rear guards and flankers. A portion of the infantry precede, flank, and follow the column, the remainder march concentrated as a reserve about the centre. 100 to 120 infantry and 25 to 30 cavalry should generally suffice for 1000 prisoners.

The officer in command of the escort receives the route by which he is to march, also a list, if possible a nominal roll, of the prisoners under his charge; and when handing them over he should get a receipt.

Before starting, the prisoners should be warned that any attempt to escape, or other insubordination, will result in their being shot or cut down; the weaker the escort the more severe must be the measures to be taken. They are at the same time to be told that if they behave well, they will be well treated.

The escort always loads in the presence of the prisoners.

The prisoners are to march in regular formation, on as broad a front as possible, in the centre of the road, the officers separate from the men. Any prisoners who show signs of insubordination are to be separated from the remainder, and marched with their hands tied together, under the control of specially selected men from the escort.

Non-commissioned officers amongst the prisoners are to be held responsible that discipline is maintained. Temporary halts

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should be made on open ground, with, if possible, a stream, marsh, or other impassable ground on one or more sides, but never in woods or inhabited localities; and the passage of these latter must be avoided as far as practicable.

Arrangements must be made regarding food for the prisoners, and cooking utensils provided in order to enable them to cook.

At night, if large barns or houses can be found in which to place them, all the doors should be locked, except one, at which a double sentry is placed, and a lantern must be kept burning. If it is necessary to bivouac, the precautions are the same as for temporary halts.

If the column is attacked, the whole of the prisoners are to lie down, a portion of the escort remains to watch them, threatening to shoot any that move, and the remainder resist the attack.

Escort of Convoys.

The convoy may consist of waggons with supplies, or wounded, remount horses, cattle, &c.

Before starting, the commander draws the convoy up on as broad a front as possible, and it marches always in the same consecutive order, each driver having a number. In a combined convoy of waggons and animals, the former are to be in front.

As regards the tactical arrangements they must be such that in case of attack, the engagement shall take place at some distance from the convoy. With this object, the escort is divided into two parts; the one, as weak as circumstances will permit, maintains discipline amongst the drivers, and sees that the column keeps properly closed up; the other, consisting of the main body, marches concentrated, covering the convoy with advanced and rear guards and flankers.

If the enemy is in the vicinity, and the ground is broken, it is advisable that the main body should go from one defile or hill to the next; and the convoy should only follow when the ground, particularly on the flanks, has been searched.

In case of attack, if the convoy cannot get away in time, a lager is to be made, the cavalry escort attacking the enemy, whilst the infantry defends the convoy.

Halts for the night must be made, as far as possible, in a spot with a clear field of fire, and the waggons formed into a lager.

S. 8. *Raids, Surprises, &c.*

General Observations.

Although campaigns are principally decided by general actions, these latter are merely the result of wide and complicated combinations.

In order that an army may meet the enemy at a given point with a good chance of success, it is necessary that all its arrangements regarding the concentration of troops and their supply with food, ammunition, &c., should be carried out undisturbed.

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All these arrangements depend, not only on military, but also on political, technical, topographical, and financial considerations, and in order to be successful must work harmoniously.

The interruption of a railway or telegraph line, the destruction of an ammunition or supply column, the capture of a despatch, may produce difficulties the results of which cannot be estimated.

Cavalry is the arm which must carry out the above enterprises, and, as a rule, one or two squadrons at most are employed together. The instructions for contact squadrons and officers' patrols apply generally to squadrons detached to effect surprises or lay an ambush. All their operations, however, on account of their weak strength and isolated position, must be based on effecting a surprise.

Surprises.

Surprises undertaken by cavalry alone (and it is only such that are here intended) will be directed, as a rule, against the enemy's outposts, bivouacs, small detachments on the march, convoys, isolated magazines, railways, telegraphs.

To be successful, a surprise must generally be carefully planned. The first consideration is to ascertain as far as possible the enemy's position, numbers, precautions he takes, &c. As soon as sufficient information regarding the above has been obtained, the following points are those upon which the success of the enterprise will chiefly depend, viz. :—

Time for carrying out the Operation.—As a rule the most convenient method is to arrive in the neighbourhood of the enemy towards evening, take up a position under cover, and utilize the night for making a thorough reconnaissance, and to carry out the surprise about daybreak, if the enemy does not seem very alert, or else after his morning patrols have returned.

Direction of March.—A first necessity for success is that the party should be able to approach undetected; consequently, as a rule, a long detour must be made to avoid discovery, and with a view to taking the enemy in the flank or rear.

Order of March.—This must be as concentrated as possible to avoid discovery; there should be no noise, and measures must be taken to avoid accoutrements rattling against each other.

The Attack.—The plan on which this is executed depends so entirely on the ground and existing circumstances, that only certain rules, which are applicable in nearly all cases, will be here referred to. The essential is always to approach as close as possible undiscovered, and then attack vigorously and quickly, so as to be upon the enemy before he can form up or has realised what is about to take place.

The whole of the dispositions must be made clear to all, and certain definite signals, which cannot easily be misunderstood, agreed upon.

The leader forms a portion of the force into a reserve, and directs the remainder to attack from one or more sides; attacks from two or more sides produce much greater confusion amongst

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the enemy than an attack from one side only; on the other hand, there is a greater risk of premature discovery, and care must be taken that the attack shall be simultaneous.

The leader, accompanied by a trumpeter, posts himself with the reserve in such a position that he can watch what goes on and, if necessary, throw the reserve into the fight or order a retreat; under no circumstances should he join personally in the fight.

The line of eventual retreat must be arranged, also a spot agreed upon which all are to make for in case the enterprise fails, or too strong a force of the enemy suddenly appears.

On the march to the enemy the leader should have made up his mind as regards this latter point, and every man of the party must know where the place is and the way to it; it is desirable that it should lie on the general line of retreat, not too close to the scene of action, and behind some natural obstacle.

Three signals will be sufficient for most cases:—

"Charge,"—or better, a shrill whistle, as the signal for attack.

"Rally,"—the attacking parties to join the reserve.

"Mount,"—every man to make the best of his way to the place agreed on in case of failure. This signal is given instead of "Retire," or any similar call, so as to leave no loophole for mistakes.

If the attack is made in the dark, each man should have a distinguishing mark, such as a white band on the arm.

If the surprise is directed against a line of outposts, the whole party, without paying attention to the vedettes, must make for the piquet; there is to be no firing.

Against troops in billets or bivouac, the first point is to cut down the sentries, trumpeters, buglers or drummers, overpower the guard, occupy the alarm post, and try and seize the commander and other officers.

In the case of a cavalry bivouac, a party should be told off specially to cut the horses loose from the piquet ropes.

Retreat.—If the surprise has been successful, the party must return as quickly as possible to its own outposts by the shortest road. On the return journey the march should not be too concentrated, and every precaution should be taken against surprise. To appear unexpectedly and disappear rapidly are two axioms in all surprises.

AMBUSHES.

These are surprises directed against troops, bearers of despatches, or convoys on the march, and in most points the conditions of success are analogous. Reliable information regarding the road the enemy marches by, his numbers, order of march, and the precautions he takes are here the chief points.

Choice of Places for the Ambush.—They must be on the enemy's flank, as a rule, and, if possible, close to a defile, as he cannot be in fighting formation whilst passing through it; they should be under cover, and with ground on which cavalry can act.

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The distance from his line of march depends chiefly on the precautions the enemy is supposed to be in the habit of taking; if too close, there is a risk of being discovered by his patrols; if too distant, the advantages of a surprise are lost.

The party or parties remain hidden in the spot selected without sending out look-out men and patrols, or at any rate not more than one or two sentries, who are to be posted close by, in the immediate flanks and rear. The leader must himself watch the enemy's march so as to give the signal for attack at the right moment; neither a non-commissioned officer nor a private should be entrusted with this duty.

The Attack.—The dispositions regarding the division of the force, signals, &c., laid down for surprises, hold good for ambushes.

The attack takes place as soon as so many of the enemy have passed as it is considered the party can overpower.

The attack of a convoy never presents much difficulty, unless the ambush is prematurely discovered by the patrols; if this has not taken place, the fore part of the convoy should be allowed to pass, and the attack directed against the centre. If the ambush is discovered, or the enemy halts or hesitates, he must be attacked at once, and as much damage done as possible; it is rarely advisable to retire without attempting an attack.

Retreat.—The measures laid down for surprises apply equally to ambushes.

S. 9. *Destruction of Railway and Telegraph Lines.*

As a rule, the time and means at the disposal of parties of cavalry employed for the above objects will only permit of the partial interruption or destruction of railway and telegraph lines. If the damage to be carried out is intended to be complete, the work should be entrusted to troops specially trained, as the more thorough their technical training has been, the quicker and more systematically will the work proceed, and, consequently, the longer its execution can be delayed—a point, under certain circumstances, of the greatest importance.

The following are general rules:—

1. Neither railway nor telegraph lines are to be damaged without special orders, and these should always specify the nature of the damage, whether to be partial, or as complete as circumstances will permit.

2. Whenever possible, the work executed should be of such a nature that it will not be easily detected; for example, in the case of a line of railway—
   (*a*) Remove the fish plates, and shift the position of the rails slightly; or cut the sleepers under the rails and simply replace the latter over the hollow thus made.
   (*b*) In hot countries, insert wedges between the junctions of rails, points, &c., thus opposing an obstacle to the

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extension produced by the sun's rays during the day. This will cause deviations in the line in all directions.

(*c*) Cut the water supply for engines, especially in the vicinity of steep gradients.

In the case of telegraph lines—

(*a*) Cut a wire and replace it by a stout piece of whipcord.

(*b*) Establish a "leak" by connection of the conductor to earth. The connection may best be made along the pole.

(*c*) Establish a "contact" between two wires.

Cutting down the poles takes time, and they can be replaced almost as quickly as they can be cut down.

3. In extreme cases use gun cotton or dynamite. It is not advisable to employ explosives, if the work can be carried out without their help, as the noise produced must give the enemy notice of the undertaking.

4. If a station is to be taken, the first thing is to interrupt the railway and telegraphic communication on both sides; next, approach as close as possible under cover, but rapidly, and endeavour to surround the place; seize the officials and registers, and place outposts. Cartridges of gun cotton or dynamite can be placed so as to destroy the line in case the enemy attacks before the operation is completed.

Subterranean Telegraphs.

Abroad, telegraph lines are very generally subterranean.

The existence of such a line being known or suspected, search should be made for marks, generally blocks of wood or stone, indicating the position of test boxes. These, however, may have been removed, and in this case, a trench should be dug simultaneously on each side of the road, at right-angles to its axis, and not close to a bridge or other construction, as there is generally a deviation in the position of the cable in the neighbourhood of bridges, &c. If the line exists, it will be found about three feet below the surface, and a line of bricks or metal piping will indicate its existence.

As the cable is usually enveloped in a casing of wire and gutta percha, it is somewhat difficult to break it without melting this outer covering, and this latter operation would present, as a rule, great difficulty. The best course, probably, is either to attempt to destroy the insulation by means of smart blows with a farrier's axe or hammer, or else to cut the cable by means of gun cotton.

Subterranean cables will be rarely interrupted by blowing up a bridge, as they are seldom led over bridges, but are laid some little distance above or below them. In this case, they must be grappled for with a grapnel.

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Lecture XII.

The following is added to the course in accordance with G.O., 29, 1887.

FOR CAPTAINS ONLY.

THE EMPLOYMENT OF HORSE ARTILLERY WITH A DIVISION OF CAVALRY ACTING INDEPENDENTLY.

It may be assumed that a division of Horse Artillery, consisting of two or three batteries, will be attached to a Division of Cavalry, when acting independently.

S. 1. *Duties of the Officer Commanding the Artillery with a Division of Cavalry.*

1. There should be a special commanding officer for the artillery; one of the officers commanding batteries should not be detailed for this post, as their interest should be centred in their own batteries.

2. He should be thoroughly acquainted not only with his own arm, but with the formations, movements, and drill of cavalry.

3. When acting with cavalry he must have more independence than when with infantry. This is not so necessary when the cavalry forms merely a covering in front or rear of an army; but in a fight, it is absolutely essential that he should be allowed a certain freedom of action.

4. His place is with the commanding officer of the cavalry, to learn his views and receive his general instructions, till his batteries are in action, when his place is with them.

5. The most suitable position, then, for him is on the flank of his batteries nearest the cavalry, where he will best be able to observe the course of the fight. He should see that the ground, both in front and rear, is carefully reconnoitred with reference to advancing or retiring.

6. When the artillery has taken up its position for the fight, it is, to a great extent, left to its own resources, and the officer commanding must, after receiving general instructions from the commander of the cavalry, use his own discretion as to the best way of conforming to the cavalry movements, at the same time giving them as much assistance as possible.

S. 2. *Escorts.*

1. A special escort will be given to batteries of artillery only when their isolated position renders it necessary. A squadron, as a rule, will be sufficient for the purpose.

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2. The duty of the escort is to protect the guns when limbered up and on the move, and when in action, against surprise; and to do this effectually it should throw out scouts in any direction from which the enemy's troops should creep up unobserved.

3. In the cavalry fight, the different phases follow one another with great rapidity, and the dust and conformation of the ground will probably quite conceal any threatening movements against the guns; so that without special protection the action of the guns might be paralysed, and heavy losses inflicted by small bodies of an enterprising enemy.

4. A cavalry escort should be on the most exposed flank of the guns, well screened from view, in echelon to the rear. In an open plain it may be at a distance of 100 or 200 yards, but should there be cover in the vicinity it will, of course, be taken advantage of. It should never be placed directly in rear of the battery when in action, as in such a position it is exposed to the fire which may be directed against the guns.

5. As a general rule when the guns advance at a gallop to take up a position, the escort should move forward at a rather slower pace, so that the horses may arrive at their post fresh and ready for a charge, should such be necessary to repel an attack on the guns.

6. When a battery is retiring in action, the escort should allow the guns to pass it, and will then move steadily to the rear on the exposed flank of the battery, halting when the guns come into action as close to them as circumstances and cover will allow.

7. When the escort is sufficiently numerous and the ground suitable, it may occasionally be advisable to dismount some of the escort with carbines, while the battery is in action, in order to check the advance of an enemy on the exposed flank of the guns.

S. 3. *Formations.*

1. The most compact and handiest "rendezvous formation" is a line of quarter columns of divisions, without battery intervals.

2. When expecting to be engaged, or about to cross difficult ground, the quarter column should be opened to deploying intervals; they are then ready at any moment to form line.

3. In changing direction on the move, it is best to work on the two centre guns, one flank increasing and the other diminishing the pace.

4. In action, echelon of batteries is generally the best formation as admitting of ready conformity to the changes of the action.

S. 4. *On the March.*

1. The artillery should march as near the head of the column as is consistent with its safety, in order that it may be brought into action without delay, and remain in action as long as

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possible. Should the cavalry Division be marching on one road, it is probable that one of the Brigades will be detailed as advanced guard, and be furnished with a battery; in this case the battery would march immediately in rear of the main body of the advanced guard.

The batteries with the main bodies of the Division should march together in rear of the leading regiment.

2. Should the brigades be operating separately, each would furnish its own advanced guard; and the battery, if attached to the advanced guard, would march immediately in rear of the main body of the advanced guard; if left with the main body of the brigade, its place will be in rear of the leading squadron.

3. The Division being formed for attack in three lines, the batteries should be formed in line, or quarter columns of divisions, at full intervals; in the latter case the columns should be at deploying intervals. The batteries should be, if possible, on the protected flank of the cavalry, in line with, or in rear of the first line.

S. 5. With the advanced Guard.

1. The artillery with the advanced guard should never be pushed forward with the troops actually engaged in reconnaissance, whose whole attention should be devoted to their own peculiar duties, which are to observe, and not to fight; the presence of the guns would only hinder them, and impede their movements and retreat if driven in.

2. As soon as the advance is checked, and the advanced parties either driven in, or brought to a standstill by the enemy, who may be occupying a position, the commander of the advanced guard, accompanied by the commander of the battery, will proceed to the front, personally to reconnoitre and decide as rapidly as possible whether to push on or fall back; should he determine to attack with the advanced guard, he will direct the latter to bring his battery up to a position whence he can cannonade the enemy, whilst the cavalry advances and threatens the flanks of the enemy's position.

3. In taking up this and all other positions for a similar purpose, the greatest care must be taken to select one whence fire can be maintained as long as possible; that is where the cavalry, by their advance, will not mask the guns and oblige them to cease firing.

The cavalry commander in his advance, and the artillery commander by the position he takes up, must co-operate to obtain this most important result.

The artillery should as a rule advance straight to its front and gallop at once to a decisive range of say 1,500 yards and open fire, as it is better to be prompt on meeting with a check than to waste time in finding the best possible position.

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4. Should the enemy's position be very strongly held, and should he be provided with artillery and infantry, it will at once be clear that he cannot, unless greatly demoralised, be forced out of it by the advanced guard alone. The battery should on no account be allowed to maintain an artillery duel, and fire away its ammunition with a doubtful result.

5. The supply of ammunition to horse artillery acting with cavalry at some distance from the army is a matter attended with great difficulty, and it is most important that it should always have a supply at hand.

6. Should the advance guard succeed in driving back the enemy, the order of march should be resumed.

S. 6. With the Rear Guard.

1. With a rear guard covering the retreat of an army, and expecting constantly to be in contact with the enemy, probably more than one battery will be employed. Here the object is to delay the enemy, which can best be done by the fire of the guns, which will cause him to deploy at a great distance.

2. Every position from which this can be done should be occupied, and with two or more batteries the retreat should be made alternately—one battery retiring, covered by the fire of others which have already been withdrawn to positions in rear.

3. Guns so employed should be protected by a strong escort.

4. To act defensively *with effect*, the cavalry must dismount, and the battery should come into action behind the line of the dismounted men. When it is decided to fall back, the battery should limber up and retire, followed by the cavalry, who would meanwhile have taken to their horses.

S. 7. The Fight of the Division.

1. The object of the artillery is first to silence the enemy's guns; but as soon as his cavalry appears, the fire should be turned on his first line, and continued on it till the latest moment compatible with the safety of our cavalry. Then the fire should be directed against the second and third lines, the latter of which, if the position for the guns has been well chosen, it should be possible to fire at during the charge.

2. As the time for preparing the attack by the artillery will be comparatively short, immediately the cavalry has resolved to attack, the artillery, without preparatory cannonade, should advance as rapidly as possible with its escort to a distance not exceeding a third of the whole space separating the cavalry and the object of its attack. Here it should come into action, and fire steadily at the enemy till its fire is masked by its own cavalry in their advance.

3. If well placed it need fear no front attack. Cavalry seldom venture to attack well-placed and efficiently-served guns.

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4. The batteries should be massed and their fire concentrated as much as possible, so that the movements of the cavalry may not be seriously impeded by the dispersion of the artillery over a large front.

5. The advance of the guns should be, if practicable, on the protected flank of the cavalry, directly in the direction of the enemy, while the cavalry will probably advance obliquely to the enemy's line to endeavour to take it in flank: the enemy seeing his flank thus threatened will wheel up his first and second lines, which may thus be taken in flank by the fire of the guns.

6. By attacking in this manner, pivoting on and supported by the batteries, who are firing directly on the enemy, two important advantages are gained; first the, enemy is driven to expose himself to a flank fire; second, if his guns, as presumably they will be, are opposite to our guns, our cavalry will be wholly or partly sheltered from their fire by the oblique movement of the enemy's cavalry.

7. It must be recollected that the time available for the guns to fire is very short; the advance must therefore be made with the utmost rapidity, and as far to the front as possible, in order that the fire may be sustained till the opposing cavalry are about to meet, and that then the enemy's reserves may be brought under fire.

8. The position of the guns once taken up should not be changed unless absolutely necessary; but when the whole of the third line is engaged in the *mêlée*, and there remains nothing further to fire at, the limbers should be brought up, and the batteries held in readiness to move. As, however, it is from the third line, or bodies detached therefrom, that the greatest risk to the guns comes, it would be highly imprudent to limber up till the whole of the enemy's cavalry is engaged, and till there is no chance of the guns being again brought into action with effect without a change of position.

With three batteries, however, it is considered well, as soon as the charge takes place, to limber up the one on the outer flank, and hold it in readiness to advance if the charge is successful and the enemy retires, in order at once to co-operate in the pursuit.

9. Should the cavalry by their charge, or by dismounted men take a position the possession of which is important, then as many guns as may be necessary should be advanced without a moment's delay to aid in the defence, so as to prevent the enemy from re-forming and attempting to re-take it, and to operate on his line of retreat.

10. *After a successful Charge.*—Should the combat have been successful, the enemy's cavalry, on their retirement, will be exposed to the oblique fire of the guns from their first position, which need not be changed.

If, however, his retreat be not in such a direction that the guns can act upon him, they should all be advanced in such a

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manner as to act upon his flank, to break his resistance and complete his defeat. To do this the batteries should be advanced in echelon; and coming alternately into action, a ceaseless fire should be maintained, and no rest or chance of re-forming left to the enemy.

11. *When the Charge has been unsuccessful.*—In this case the artillery, remaining in their first position, offer a solid rallying point for the cavalry to retire on, either for covering their retreat, or for enabling them to re-form and resume the offensive.

This is perhaps the most important *rôle* of the artillery; if efficiently carried out, it may prevent a disaster, and perhaps lead to a victory. If, however, directly the cavalry appears to be defeated, the guns are withdrawn to a backward position, this becomes impossible: the guns must therefore hold on with tenacity to their position.

12. When the cavalry is defeated and pursued by the enemy in the direction of the batteries, the task of the latter becomes a very difficult one; the pursuing enemy must be stopped at all risks, and it will be a matter of the greatest difficulty not to injure our own cavalry by the fire of the guns.

13. When there is no hope of restoring the equilibrium of the fight, and the only alternative is a retreat, which must be covered by the guns, the batteries should be withdrawn by echelon. This movement on the part of the artillery should not be undertaken without orders from the cavalry commander, whose duty it is to inform the artillery commander of his intention.

14. The retreat is thus carried out by a division of two or three batteries. The inner batteries, that is those nearest to the *mêlée*, retire first, and take up a position in rear, as a point for the cavalry to retire on, under cover of their fire; the outer battery remains to cover the retreat of the cavalry, and to repel, by means of its fire, with the aid of any small bodies of the third line which are still unbroken, the enemy's attacks. The pursuit of the latter being checked, the rear battery should be withdrawn to the position occupied by the other guns.

15. As in the pursuit, the most effective action of the artillery will be on the enemy's flanks; it should therefore be the object of the cavalry to endeavour to draw their pursuers in a direction oblique to the line occupied by the guns.

16. When the retreating cavalry has to pass a defile, the guns should be hurried through it, and take up a position in rear of it, whence they can take the pursuing troops in flank, and check their advance, by which the cavalry will nearly always be able to pass it in safety.

Horse artillery should never retire faster than a trot.

S. 8. *The Passage of Defiles.*

Defiles will always be passed in a methodical manner in the presence of an enemy.

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1. Officers' patrols will reconnoitre the nature of the passage, and look for means of turning it whilst the advanced guard and main body halt under cover.
2. The artillery will take up two positions so as to bring a cross fire to bear on the entrance.
3. If the defile is apparently unoccupied, patrols will pass through and scout sufficiently far on the opposite side to make certain that there will be sufficient time for the main body not only to pass, but to deploy; a brigade of twelve squadrons in sections, with a battery, forms a column of about three-quarters of a mile, and will consequently take about six minutes to pass a bridge at a trot.
4. If the defile is occupied, and cannot be turned, it will be attacked by the artillery, and a suitable force of dismounted men. If the attack is successful, the column will pass with the following precautions :—Half the artillery and a proportion of cavalry pass first and take up a position on the far side, with dismounted men on each side of the defile to act as a support. The remainder of the column follows at a suitable distance.
5. The front on which the defile is passed will never exceed half a breadth of the road.
6. If the defile can be turned, the enemy must be held in front by demonstrations whilst the turning movement is carried out.

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Lecture XIII.

INFANTRY TACTICS.

TACTICS AS INFLUENCED BY FIRE.

General Observations.

I.

Necessity of Peace training for War.—The more carefully troops are trained to do during peace what will be required of them in time of war, the more efficient they will prove when they take the field. It is a recognised fact that men who are in ordinary times taught and frequently practised to act in a particular manner, will, from acquired habit, under somewhat similar conditions, do the same in moments of great mental strain, and will, even under heavy fire, act, as it were instinctively, according to well-established custom.

Efficacy of fire can only be obtained when men keep their presence of mind; and to obtain the best results, there must be good organization, strict discipline, and constant practice.

II.

Considerations influencing the fight.—A clear uninterrupted field for the use of the rifle is necessary in order that the greatest efficacy of fire may be obtained. Victory depends not so much on the losses inflicted upon the enemy as on the moral effect produced by a determination to hold what has been won, or to advance, as may be ordered.

Modern fire-arms have greatly increased the power of defence; superior numbers should therefore be employed in the attack, and deficiency in this respect can only be compensated for by skilful leading.

Commanders must bear in mind the considerable distances to be traversed and the fatigue to be undergone by troops advancing to the attack under the conditions of modern war, and, in view of the final effort of the fight, must husband the strength of their men by every means in their power.

The fire to which attacking troops are exposed may be appropriately divided into three zones. The first zone begins at about 3,000 yards from the enemy's guns, and is about 1,300

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yards in depth, its further limit being at about 1,700 yards from the infantry of the enemy's position, at which distance unaimed rifle fire begins to tell. This first zone may be regarded as a purely artillery zone. The second zone begins at the furthest limit of the first zone, and extends to within about 800 yards of the enemy's infantry, at which distance aimed rifle fire becomes very effective, and the fire of artillery very deadly. The third zone extends from the further limit of the second zone up to the enemy's infantry.

III.

Conditions regulating Formations.—Although the history of war shows that rules have often to be set aside, yet normal tactical formations have a real absolute value, and when adapted to the configuration of the ground, and to the nature and condition of the troops, seldom fail to influence favourably the issue of a contest.

The manner in which troops must fight will be governed very much by the numbers employed. In a battle, most of those engaged are restricted as to their front by the presence of others on either side of them; whereas in a small combat, the front of an independent detachment is limited only by consideration of ground, the maintenance of cohesion, and the position of the enemy.

The following conditions should be kept in view in adopting formations of attack against disciplined and well-armed troops.

Formations should—

(1) Admit of the most efficacious fire at all times, and of its greatest development at the decisive moment.
(2) Present a difficult target to the enemy's fire.
(3) Allow of the best use of any cover that can be advantageously made use of.
(4) Afford the greatest mobility at all times.
(5) Admit readily of reinforcement.
(6) Lend themselves to the maintenance of command.

Troops opposed to modern rifles should pass over fire-swept zones in extended order by successive lines; those in rear feeding the firing line, in such strength as will enable it to maintain its fire power, and give fresh vitality to the attack. The formation should allow of a sufficient body in rear being always available as reinforcements whenever the firing line requires a fresh impulse; and thus enable troops to approach the enemy with as much rapidity as is consistent with steadiness and an effective fire, while the destructive effect of the enemy's fire is lessened, and decisive ranges are reached with comparatively slight loss.

In disposing troops on the field of battle such formations as will ensure the most efficient fire should be adopted; but the weapons of the adversary, and the probable effects of his fire,

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must also be considered. Close formations may be used against savages who adopt shock tactics, or an enemy unarmed with modern weapons; they give a greater moral support to and control over the men, and admit of the ready transmission of orders, but diminish the front of fire.

ARTILLERY FIRE.

1. Artillery Zone.

The extreme range of useful field artillery fire may be said to be 3,000 yards. Artillery officers claim effective action for their guns at much greater ranges, but it is not necessary for infantry to practise formations intended to lessen the effect of artillery fire at longer ranges than those at which objects can be clearly seen. As the range increases, infantry fire, compared with that of artillery, decreases very rapidly in accuracy, and becomes so uncertain as not to be worth the expenditure of ammunition.

Thus, whilst the distance at which the effect of fire can be observed practically fixes the extreme range of useful artillery fire, good infantry should make artillery pay heavily for coming into action within the effective range of rifle fire.

2. Infantry versus Artillery.

A good effect can be obtained by infantry fire on batteries of artillery up to 1,500, and in some cases even up to 1,700 yards. Infantry, exposed to artillery fire, at a range a little beyond that of rifle fire, should be advanced to within effective rifle range; when both arms are equally well trained—even when the intervening ground is open—it should be difficult for artillery, by its fire alone, to prevent infantry in extended order from pushing across the first zone, and closing to this range, but against infantry in masses it can cope single-handed. Within effective rifle range of skirmishers, guns, unsupported by infantry fire, will suffer severely.

When engaged with infantry, artillery will, if it has the choice, at first take-up a range exceeding 1,700 yards; but, in the course of the action, it may, for some special reason, push on here and there to within that range. Unless supported by infantry, artillery can, however, rarely, and never without extreme risk, advance nearer than this to unbroken infantry; but against disorganized troops, and with the support of the other arms, artillery may fight at the very shortest ranges, especially on the defensive.

When it is necessary to employ infantry alone against artillery, a distinction must be made, if the artillery is occupied elsewhere or not. When a battery is in action against artillery, the fire of a smaller number of infantry may be opposed to it than when it is not occupied elsewhere.

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Should artillery attempt to advance into position within range of infantry while the latter are still intact and are not engaged with infantry, they should endeavour to throw the artillery into disorder before it can unlimber. Artillery, on the move, is much more vulnerable than when in action, as it then offers a large target. When artillery is in motion, is unlimbering or limbering up, the teams form the best target; at other times the gunners.

If it is necessary to employ a small force of infantry (say 50 men) against artillery otherwise engaged, the infantry fire should be concentrated on one gun at a time. When concentrating fire on individual guns, that to windward should be attacked first, as it is the most free from smoke, and from that flank the observation of fire is conducted. When individual gunners can be noticed, those bringing up ammunition should be fired at first, as on their movements the rapidity of the fire depends.

3. Artillery in the Attack.

After some little preliminary skirmishing between the advanced cavalry of both sides, all actions, great and small, begin with an artillery contest, when the attacking side, bringing all its guns into action, strains every nerve to subdue the artillery fire of the defence so as to allow its own infantry to cross the first zone, and engage the opposing infantry at effective rifle range. The attack at the opening of an action, concentrates therefore its artillery fire first on the artillery, and when the enemy's artillery fire is fairly silenced, then on his infantry, and especially upon the strong tactical points of the defence. Whilst this artillery contest is proceeding, the infantry deploy for the attack, and should drive in all the enemy's detachments in front of this position. When this has been accomplished, the general in command will decide when it is fitting to push forward his artillery to within the more effective range of about 2,000 yards of the enemy's guns. When the attacking infantry has crossed the first zone, and reached within effective range of the enemy, its fire supplements that of the artillery. Upon reaching the limits of the third zone, its fire becomes deadly, and as soon as the preparation is complete, the actual attack is delivered. It is infantry fire which really decides the issue.

When the guns are pushed forward, infantry in advance may be required to keep the infantry of the enemy from approaching within effective rifle fire of the guns. These supporting bodies may be called for from the nearest available troops.

In the preparatory advance to the attack, every feature of the ground is taken advantage of to bring up infantry, under cover, to an effective range, without undue exposure to the enemy's fire; but ground will not always favour an advance, and it is then to be remembered that it is the density of the formation

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which is the greatest cause of loss. The ground covered by the bursting of a shell is far greater in depth than in width. The range and accuracy of modern arms preclude the manœuvring of infantry in dense formations within effective range of the enemy's artillery.

The rules which govern the use of artillery in large battles are very different from those for smaller combats. In the former the artillery of an Army Corps requires a front of about 2,000 yards, and will be compelled to occupy some portion of the ground over which the infantry must advance; but when acting with a small force, artillery can generally choose its own positions, and fight on the flanks of the infantry, or in any intervals in the line; it will also probably be able to do so in the later phases of more serious engagements.

Batteries will never hesitate to fire over their own infantry if circumstances require it.

4. Defence against Artillery.

In the defence, some of the infantry may occupy a forward position for a first line of resistance; they will be able to delay the advance of the hostile artillery, or to make it suffer losses while still distant from the main position. These troops should be specially detailed, and should be distinct from those entrusted with the main line of defence.

At the commencement of an attack the fire of the advancing infantry is not very serious, as artillery alone then fire with efficacy. The defence, too cannot expect much effect from their fire against the infantry of the attack whilst at a distance and in a scattered formation. But infantry well posted, and with the knowledge of the distances, which can be more easily obtained by the defence, can always, even at long ranges, inflict serious loss upon the artillery of the attack.

5. Notes regarding Artillery Fire.

1. Artillery, when once posted in a good position, will try to remain in it as long as its fire is effective. Guns can only be of use as long as they are stationary.

Artillery will usually adopt a formation that will enable the fire to be directed by the will of one man.

3. A cessation of fire at any time will probably mean that the battery is about to move. Fire should be directed on the teams as they come up.

4. The trajectory of modern high velocity guns is low; all cover, therefore, becomes more valuable to infantry as it gets closer to them, for their accuracy is practically as great at 1,000 as at 500 yards.

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5. When taking up a position with the object of firing on artillery, infantry should bear in mind that artillery, as a rule, prefer high ground, and will not, if possible, come into action within range of visible infantry, who are not engaged with other troops.

6. Infantry should avoid the neighbourhood of conspicuous objects (trees, houses, stone walls, &c.), as these assist artillery in finding its range. A small hollow, or soft ground, immediately in front of infantry is very baffling to the enemy's artillery, as is also a position some distance in rear of the crest of a plateau.

7. The fire from a battery generally begins from a flank with common shell to ascertain the range; when the range is ascertained by the bursting of the shell on impact and the fire becomes accurate, the fire may then be regular.

8. The fire of common shell by the enemy will generally precede that of shrapnel; the short pause between the two will give an excellent opportunity for a skirmishing line to push in; in which case the enemy's battery will have to find its range again.

N.B.—Common shell burst on impact: shrapnel are meant to burst in the air in front of the object fired at, but if fitted with time and percussion fuze, will also burst on impact.

9. Infantry, suffering from artillery fire, will often incur greater loss by retiring than by advancing.

10. If the enemy fires a salvo, it often indicates that the infantry is so well placed that it is difficult for him to observe the effect of his fire.

11. One or two shrapnel which burst well in front of advancing infantry often mark the spot on which the enemy intends to open a rapid fire of shrapnel when he considers that the infantry are within reach of the bullets. The intervening space should be crossed as quickly as possible.

12. The appearance of individual officers on a probable artillery position is a sign that guns are coming; the neighbouring infantry should then remain concealed, if possible, and in readiness to overwhelm the guns with a destructive rifle fire.

13. To disable guns.

(i) Breech-loaders.
Open the breech, and if possible remove some portion of the breech mechanism, or bend or burr it with the handspike.
N.B —Many modern guns have removable vents; it is of no use to spike these.

(ii) Muzzle-loaders.
Spike the guns.

(iii) All guns.
Carry away linch-pins and tangent-scales; break elevating wheels and trunnion-sights.

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INFANTRY FIRE.

1. *Cone of Fire.*

In the first zone the infantry fire of both sides counts for very little; the best positions in that zone should therefore be allotted to the artillery, on the effectiveness of whose fire everything then depends.

When a volley is fired, each rifle being directed on the same object, the paths of the bullets in the air form a curved cone of fire more or less dispersed in relation to distance and to the steadiness of the firers, making instantaneously a group of hits similar in deviation to a group made by the same number of shots fired consecutively by one man. The volley is therefore in itself more immediately effective than a succession of shots fired by an individual; it is the only method of firing which allows of complete control, direction, and concentration, on which essentials the full efficiency of fire in action depends; it also admits of correction of elevation and direction by observing where the bullets strike, enables the expenditure of ammunition to be regulated, and is the best fire to be used in pursuit or whenever it is necessary to get men in hand and keep them steady.

Volley firing should therefore be continued by attacking troops as long as possible. Independent firing should only be resorted to by the firing line immediately before the final charge or when in close proximity to the enemy. The smoke it creates will be in many instances a good screen for the line coming up in rear of the firing line to deliver this final charge. Dropping individual fire carried on here and there produces little result, and has the drawback of slackening the advance; it is more adapted for skirmishers and scouts.

To understand the form of the cone of fire in relation to the distance from which it is delivered, and how to apply it, or receive it, on varied configurations of ground, must be the careful study of officers, as it governs the disposition and formation of troops whether in attack or defence.

The curve or angle of descent increases in proportion to the distance; at the same time the section of the cone increases, and the density of the fire is consequently decreased.

The beaten zone is that portion of ground struck by bullets fired with the same elevation, and directed on the same object; it decreases as the range increases, owing to the greater curve of the trajectory; the width of ground beaten increases with the range.

As an example of the application of these principles; when firing against rising ground, or against troops in movement or presenting considerable depth, a dispersed cone (caused either by distant fire, or by using varied elevations, or by aiming with the same elevation at different spots) would be most effective; when firing against falling ground, or compact bodies, or

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attacking cavalry, a close cone would give the best results; in both cases the required form of the cone being determined by the degree of rise or fall of the ground from the line of sight.

When troops are holding a plateau, and the upward fire of the advancing enemy directed on its crest is from comparatively short distances, the defenders should be drawn towards the crest, where they would be safer, and also best posted to repulse the enemy; but when the fire is distant they would be safer withdrawn from the crest; the position in either case depending upon the height of the plateau and the distance of the enemy's fire.

2. *Description of Fire.*

Volley firing should be used in the attack as long as possible, and as a rule it should be by sections. At long ranges the fire unit should generally be the half company, in order to give the full effect which a concentration of fire produces; but a good volley can rarely be delivered by a larger unit than the section.

Independent fire is difficult to control in the attack, and should be postponed as long as possible; when troops once begin independent firing, it is most difficult to induce them to rise with one impulse and dash at a firm enemy.

The more thoroughly the habit of firing volleys at the closest ranges is acquired by troops in peace practices, the longer will it be possible to fire by volleys in actual fight. For this reason independent firing is not to be used except, as already explained, in connection with the final charge upon the position, or at close ranges.

In offensive operations the preparation of the attack belongs to the artillery, and the firing line should not, as a rule, open fire until the second stage of the attack commences; and only then if the ground be open, and does not admit of a closer advance without firing. No battle has ever been won at long ranges, owing to the uncertainty of the fire, and the feeling of security which distance engenders.

On the defensive, however, especially against large bodies of troops, and efficacious fire may often be directed at the extreme ranges to which the rifle is sighted. Apart from other results, this long-range fire will compel the assailants to open out sooner than they intended, thus greatly increasing the difficulties of the advance, possibly inducing them to return the fire, and to prematurely expend their ammunition, which it may not be possible to replace.

Experience teaches that the expenditure of ammunition is greatest when long-range fire has been employed. Consequently, a commander should carefully consider his supply of ammunition and the means of replenishing it before he decides to use such fire. It should not be undertaken by those troops which are destined for the assault, unless an ample supply of ammunition is at hand.

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3. *Limits of the Employment of Fire with the Martini-Henry Rifle.*

The limits of the employment of rifle fire depend on knowledge of the range, and the features of the ground In the field, the moral condition of the troops, and the quantity of ammunition at their disposal, must also be taken into consideration. These limits, therefore, cannot be absolutely fixed, but the result of numerous experiments enables certain general rules to be established.

On troops in close order, volley firing by sections will be found effective, if it be well regulated and directed—

At 800 yards, on a small section.

At 1,000 yards, on a large section.

At 1,200 yards, on a half company, and on a division of artillery, *i.e.*; two guns.

From 1,400 to 1,700 yards, on battalion or company columns, and on compact bodies of artillery or cavalry.

4. *Classification of Distances.*

For the sake of convenience, firing distances with the rifle may be classified as follows:—

Up to 400 yards, "*Short Distances;*"

From 400 to 800 yards, "*Medium Distances;*"

From 800 to 1,700 yards, "*Long Distances;*"

From 1,700 yards and upwards, "*Extreme Distances.*"

5. *On the relative vulnerability of various formations on open ground.*

At "short" distances, to a fairly good shot, a man kneeling is but little less vulnerable than a man standing up; at "medium" distances the vulnerability of a line of skirmishers is clearly proportional to its density, *i.e.*, to the intervals between the men. The vulnerability of a section in close order will generally necessitate its extension at distances between 700 and 900 yards; at shorter distances deep formations are very vulnerable, even when they present a narrow front; troops with an extended front allow of the fire upon them being easily regulated as regards direction, but at "long" distances their vulnerability is not great, owing to their shallowness when passing through the dangerous zone.

Formations in column on a fairly broad front, such as a strong company in column of sections, are very vulnerable objects. A company in column of sections would suffer, at long distances, twice the losses of a company in line. The vulnerability of deep formations in column does not diminish with increased distances as rapidly as that of a line; it depends on the number of their subdivisions and their consequent increased depth when crossing the dangerous zone; at long distances it remains practically about the same whatever the position of the men, whether standing, kneeling, or lying down.

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6. *Determination of Range.*

The efficacy of fire depends directly upon the range being accurately known.

At short distances the flatness of the trajectory almost compensates for errors in determining elevation; but at medium and long distances it is of the first consequence to know the range accurately.

The eye being an uncertain means of judging distance, all captains can with advantage carry a simple range-finder to ascertain the distance when the exact range cannot be ascertained from the artillery. Range-finders are more useful in defence than in attack. Although it may be difficult to use them with an attacking firing line when steadily advancing, still there may be moments even then when they may be very useful.

In the absence of artillery or range-finders, the distance estimated should be tested by volleys, the observer going out to a flank to watch the result, which, in ordinary cases, will be easily perceptible. But if the bullets fall on turf, wet ground, or into furze, heath, &c., or behind a rise in ground, the effect cannot be seen at long distances, even with a telescope.

The method of estimating distance by flash and sound will sometimes be found useful.

7. *Fire Discipline.*

Troops may be styled thoroughly well disciplined when their rifle fire is under perfect control, when the men aim carefully, are steady in the heat of action, and at all personal risk secure a good field of fire.

Generally speaking, the control of fire is the duty of the captains of companies and the leaders of units employed under them. The captains determine the nature of the fire, and its direction, and, helped by the subalterns and non-commissioned officers, control it to the last moment possible.

Perfect supervision will lead to no result unless it is supplemented by the most stringent fire discipline. It is only when every soldier has been well practised in this fire discipline that the full effect of modern rifles can be obtained.

The certainty that ammunition is not wasted, that the sights are properly adjusted, and the fire directed where required, are the results of fire when well under control. The nearer the enemy is approached the more efficacious becomes this fire, but the more difficult it is to maintain the necessary control over the troops engaged. The use of the whistle in the firing line is of the greatest value; it calls attention to the whereabouts of the officer, causes men to pause, and so to hear the orders given.

Sudden losses intimidate an enemy more than if the losses are gradual; fire, therefore, should be sudden, unexpected, and powerful, and sometimes divided by pauses to allow the smoke to clear away, to judge the effect produced, to give the necessary

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orders, and to steady the men. This should be constantly practised. In ordinary circumstances, not more than two or three rounds a minute should be fired, though greater rapidity is advisable just before the assault.

Collective fire is the regulated action of a number of rifles directed on the same spot; and the more it is concentrated, both as to time and place, the greater will be its moral effect. In the first stage of the attack it may sometimes be advantageous to concentrate the fire of several sections or half-companies of a battalion on the same object. The defenders of a position should pour a heavy fire upon the firing line as it rises from cover to rush forward.

8. *Position of Men Firing.*

The attitude of men firing affects the accuracy of their fire. On the defensive, when unprotected by entrenchments, or during the preparation for or the first stage of the attack, the lying down position should be used, and also ordinarily during the advance. In the final stages of the attack, if the ground is flat and open, the firing line may lie down to fire after each rapid advance, but as a general rule fire should be delivered kneeling (or standing if a view of the enemy cannot otherwise be obtained). Men must not then be allowed to lie down or creep from place to place, as, by so doing, their fire becomes less effective, they lose offensive spirit, and in the attack are not readily induced to continue the advance, or in defence to charge the assaulting line, or to deliver a counter attack at any time during the action; no scheme of defence is worthy of the name that does not provide for a counter attack.

THE ATTACK.

1. *Division into Phases.*

The attack on a position is somewhat analogous to that on a fortress. Artillery fire is concentrated on certain points; under cover of the guns the infantry advance and assist with their rifles to subdue the fire of the defenders; and finally a breach is made in the position through which a formed body of men is pushed to effect a lodgment.

It may be divided into three distinct phases:—

1st, Preparation.

2nd, Delivery (including the bayonet assault).

3rd, Re-formation after any success, and making good the position won; or, Retirement.

2. *The Preparation.*

Choosing objectives, and concentrating fire upon them, are difficult duties, and should therefore be carefully practised at

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manœuvres. Fire should be directed on the same objective until it is destroyed, or its action paralysed from the losses inflicted. Hence it becomes necessary to choose, as the first objectives, those portions which are at the moment the most efficient in defence, provided they are within effective range. In the early phases of the attack, small detachments of the enemy, pushed forward in advance of the position to be defended from about 300 to 800 yards, will be encountered, and must be the first objectives of the attacking infantry and artillery.

When the attack begins by an artillery duel, and the guns are within rifle range, they should be selected as objectives. Fire should always be directed at mounted officers and others seen in advance of their troops.

Since a dispersed fire has but small results, objectives should be changed as seldom as possible during the progress of the attack.

Victory depends upon the final assault; but experience teaches that before the bayonet charge can be successfully delivered against good troops, the defenders of a position must have been shaken and demoralized by a preparatory artillery or infantry fire directed on the main points of attack; otherwise it will be impossible for the firing line to advance over the fire swept zone.

In the absence of artillery, infantry will have to prepare its own attack, and consequently in that case a larger expenditure of ammunition than ordinary will be necessary. Special troops should be made use of for this long-range firing.

3. *The Delivery.*

There must be no indecision at this stage, but the attack must not be prematurely hurried on; the general commanding must himself decide when the enemy's fire has been sufficiently subdued to deliver it with success. The infantry must act with vigour and promptitude when the attack is made, and being well under control, and with a good supply of ammunition, must be led to within effective range, opposite the selected point or parts of the hostile line which are believed to have suffered most, aud where the foreground is most favourable to their approach.

The science of leading infantry consists in adopting the formation most suitable to the object in view, in utilizing all advantages of ground, and in concentrating fire according to time and place.

The company leaders should decide when the opportune moment arrives to open fire; and they must determine, by estimating results, whether the consumption of ammunition will be remunerative. Rapidity of movement is antagonistic to steadiness of aim; by the former, losses may be avoided, but without the latter, few will be inflicted. Until the final charge troops must not be hurried during the attack, or the firing will not be effective.

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Flank fire being very effective from the demoralization it causes, an attack begun on a flank often becomes the real attack, while what was originally a front attack serves only as an auxiliary or as a demonstration. This latter, however, must be sufficiently aggresive to hold the enemy in his position, and should be made in such formation as will admit of its being readily converted at will into the main effort. Isolated flank attacks without the aid of frontal attacks or demonstrations are very liable to be themselves outflanked.

On the other hand, when a demonstration only is intended, the fighting line shold avoid compromising itself by being drawn into a serious attack.

As far as possible, company and battalion units under their own leaders should be kept intact in the firing line with an interval on each flank. Troops when struck by a heavy fire are apt to diverge from the line of direction; it then becomes necessary to push forward sections, half companies or companies, to keep the firing line at its proper density and give fresh energy to the attack. No smaller reinforcement than a section should ever be sent forward, and the men composing it shonld keep together. These reinforcements should be brought up into the intervals in the firing line. Thus, during the advance, although reinforcements by different companies may have taken place, the line will still be composed, as far as possible, of organized units under their responsible commanders.

Although troops taking part in the attack are, as a rule, extended so as to oppose the whole line of defence, yet the actual assault will generally be confined to localities previously selected when possible, and the portions of the firing line, whose duty it is to carry the position at these points, should therefore be concentrated towards them in strength superior to that of the enemy. In other words, attacks must be general, assaults local.

Every movement in extended order does not necessarily end in an assault: leaders should therefore hesitate to commit their troops to this final stage of the attack unless certain that such an operation is intended by the general.

The moral effect of fixing bayonets is great; it intimidates the enemy and encourages those about to engage in the assault. The Second Line marching up in rear with drums beating and bugles sounding should have bayonets fixed. Upon reaching the firing line this Second Line charges through it, and the firing line at once (rises) fixes bayonets, and joins with it in the charge.

4. Re-formation after any success, and making good the position won.

When the assailants have succeeded in carrying a position, volleys will be poured into the retreating enemy, and all formed bodies of infantry within reach should be brought to the front and disposed to resist the probable counter attack; under their cover the troops which carried out the assault should speedily

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re-form, and the artillery, having, when the attack was delivered, moved forward to within about 1,000 yards of the enemy, will come into action as soon as possible after the position has been seized by the assaulting infantry.

5. *Retirement.*

A retirement under fire is always attended with the heaviest loss. The fire-swept zone has to be crossed a second time by men more or less demoralised by a sense of defeat, while the moral force of the successful side is correspondingly raised. The danger of retirement when once engaged must be impressed upon all ranks, in order that the attack shall be driven home with the greatest energy possible.

6. *Ammunition Supply.*

Ammunition transport will be indicated by a distinctive red flag, with a black ball upon it; and every mounted officer should, prior to the attack, acquaint himself with the position, not only of that belonging to the battalion, but also of the nearest ammunition column.

Extra ammunition must be issued immediately previous to the attack, and every pause in the fight should be utilised to replenish the supply of the troops engaged.

Troops engaged are to be supplied from the wagons of any ammunition column, regardless of the brigade or division to which it may belong.

The supply being always from the rear to the front, it should very seldom be necessary to send a man back from the firing line for ammunition.

INFANTRY *versus* CAVALRY.

Unless cavalry is in preponderating force, and has moreover some important object to attain at any sacrifice, it will not incur the loss which must inevitably be sustained in attacking unshaken infantry; formations in battalion squares will therefore seldom be necessary.

Squares should never be formed by infantry when in force if threatened by a few squadrons only; their object, in all probability, will be merely to induce the infantry to close and thus both delay its advance and cause it to offer a better target for the enemy's fire.

When cavalry is seen advancing without supports, it should be awaited in line, since even if it charges it can do but little harm; the flank or flanks should be slightly thrown back, for, if a choice is afforded, cavalry will select the flank for attack in order to meet the minimum of fire.

Should cavalry attack an extended line, those sections only, as a rule, which are immediately threatened, should close.

Fire against attacking cavalry must always be aimed low, and even in front of it, when galloping or coming up hill.

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ATTACK AND DEFENCE.

The Attack.

General Principles.

I.

Zones of Fire.—For about 3,000 yards from the enemy's position, the ground over which the troops destined to attack have to move is subjected in different places to different kinds of fire, which affect materially the conduct of the advance. It is convenient to divide this space into zones, but the limits here given must only be considered as approximate.

Zones.	Description of Fire.	Limits.	Terms applied to Ranges.
1st	Useful Field Artillery Limit of rifle	3,000 to 1,700 yards	Extreme.
2nd	Unaimed rifle	1,700 to 800 ,,	Long.
3rd	Aimed rifle	800 to 400 ,, 400 to position	Medium. Short.

Within the 1st zone, infantry fire does not count for much; on the other hand, the actual loss inflicted at such long ranges by artillery fire on infantry in open formations is comparatively small.

Artillery employed in defending a position does not then fire so much on advancing infantry as on the attacking artillery.

Unaimed infantry fire produces losses; but the effects of such fire may be mitigated by observing where it falls and avoiding those places.

The fire which causes the heaviest losses and checks the advance is the aimed or directed infantry fire.

II.

Distribution.—Troops allotted for the attack will, when of sufficient strength, be divided into first, second, and third lines:—

The First Line, subdivided into Firing Line, Supports, and Reserves, engages the enemy, and is intended eventually to establish itself within charging distance of his position.

The duties of the firing line are to keep up a well-directed fire on the enemy from the moment such fire becomes effective; to push forward as near his position as possible; and thence to deliver such a heavy fire as will enable the Second Line to approach the point selected for attack, for the purpose of driving him from it.

The supports and reserves keep the firing line at its most efficient strength by filling the gaps caused by casualties; protect its flanks by the fire they can bring to bear upon any troops

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which threaten them; and encourage those engaged in front, by the feeling that there is a body of comrades following to assist them. As the final stage is reached, the supports and reserves become absorbed in the firing line.

During the advance all serious flank attacks must be met by the reserves, which will also find any troops required for long-range fire.

THE SECOND LINE assaults the position when its way is prepared through the losses inflicted upon the enemy by the First Line.

THE THIRD LINE either confirms the success and pursues the defeated enemy, or covers the retreat of the First and Second Lines, and so prevents a repulse or even a defeat from becoming a disaster.

III.

Formations.—Before an enemy's position can be assailed, the troops allotted for the attack will be compelled by the fire of his artillery to open out, and quit the close formations in which they have been marching. The rifle fire of the defenders will also begin to tell at a considerable distance, and will increase in intensity the nearer the position is approached. The formations adopted by the attacking force must be suited to the character of the enemy, to his mode of fighting, to the weapons with which he is armed, and to the ground to be traversed. Close formations which could be used with impunity against an enemy having no artillery and with inferior small arms, would be impossible against troops provided with field or "quick firing" guns and modern rifles.

To cross the space swept by fire, an ordinary skirmishing line, although sufficient to feel the way, and drive in an enemy's scouts and advanced parties, would be unsuited for any more serious effort. For the attack of a position the front or firing line must be thicker; in the first place because it will have to bear the brunt of the battle, especially of all counter-attacks; secondly, because it must contain such inherent force as will enable it to reduce the destructive effects of the enemy's fire during the advance for attack.

When an advance in line or any close formation is no longer practicable, the space must be passed over in greater or less extension according to circumstances; but advancing troops, particularly those intended for the final attack, should never be further extended than is necessary, having regard to the fire power of the enemy, and the nature of the ground. If the undulations of ground afford good cover, it may be possible to bring up the Second Line intact over the whole or a portion of it, and in one part of the line if not in another; or in the case of mists, fogs, or night attacks, the line may be able to approach to within striking distance, without departing much from its original order.

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The firing line moves, as a rule, in extended order, though from the nature of the ground this may be unnecessary until the 2nd zone is reached. The intervals between its files when effective ranges are approached should be about 3 paces. It will be closer at some places, more open at others, according as the ground affords suitable cover. When the firing line opens fire, rank entire will be formed; each man would then have a space of 2 paces.

It is a principle that each portion of the extended line should be supported by men of the same tactical unit.

Supports will usually move in line, with one pace interval between files, and, when the firing line commences to fire, with such an interval between each support as will place it as nearly as possible in rear of the outer flank of the unit it is supporting.

The reserves will move in line or small columns, with one pace interval between files if necessary.

Since neither the supports nor reserves can usually fire without danger to the firing line, they will adopt that formation which is most suitable to the ground, and which will enable their leaders to hold the men most thoroughly in hand, while allowing them to advance without confusion, and to reinforce quickly when required.

Great latitude must be allowed to leaders of supports and reserves in choosing the best formations; while one portion may move in column, or fours, it may be more advantageous for another to advance in line. It must, however, be remembered that deep formations are very vulnerable, especially at the shorter ranges, and even at long distances a column would probably suffer, under the same fire, twice the loss a line would incur.

The Second Line at the "extreme" ranges should be so formed as not to offer a mark sufficiently large to induce the enemy to turn his guns on them. The best formation will probably be quarter columns or half battalion quarter columns. So formed, and kept during the early stages of the attack at about 500 yards in rear of the reserves of the firing line, the Second Line may advance slowly and experience but little loss. On arriving at "long" ranges, however, unaimed infantry fire will begin to tell, and the quarter columns must deploy. This deployment may be into small columns of two companies with one company interval, or into line, according to the relative strength of the First and Second Lines, and to the situation of the latter with regard to the points in the enemy's position which have been selected for assault.

Though the connection of the First and Second Lines should always be of the closest kind, it is unadvisable to allow any portion of the Second Line to become extended in the firing line. Except for purposes of fire-action, troops are weakened by being scattered or dispersed. The efforts of the commander of the Second (or assaulting) Line must be strenuous to keep his force together, and it is most important that it should be brought up

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steadily and deliberately to the front as fresh as possible, all hurry being avoided.

The formations adopted by the Third Line will depend upon local circumstances. They will be changed to suit the nature of the fire during the advance through the three zones, in so far as such changes will not interfere with the primary duties of confirming success or covering retreat.

It is essential that the units of an attacking force be kept intact, and that no command be greatly disseminated. In the First Line each commander should have at his disposal his own supports and reserves.

IV.

Strength.—In deciding the strength to be employed it must be borne in mind that whatever attack is determined upon should be made with a force amply sufficient to give a reasonable hope of success. When an attack is undertaken by too small a force, the result is generally failure, and to the men engaged in it, who have to cross the fire-swept zone twice, once in advancing and again when retreating, the result must be destruction. On the other hand, there is a limit to the number of men that can be efficiently employed against a prescribed front. The number will depend very much upon the nature of the operation, and the strength and extent of the enemy's position.

A commander would seldom be justified in using all the troops at his disposal as an attacking force, and as a rule it may be laid down that the infantry of the attacking force should in the first instance contain about 4 men per yard of the front to be covered.

The functions of the firing line are to crush and overwhelm the enemy with bullets; but if too many men were placed in it they would not only interfere with each others freedom of movement and independence of action when firing, but increase uselessly the chances of loss. It follows, then, that as many men should be placed in the firing line as the ground will permit, consistently with the efficient use of their rifles at the distance they may happen to be from the enemy's position. The gaps caused by casualities in the firing line must be filled up by the supports, and when they are expended by the reserves. The strength of the supports and the firing line should, at the outset, be the same, and the reserve should be equal to the firing line and supports together.

Opposite those points in the enemy's position which it is intended to assail, the Second Line should be of the same strength as the First Line, and superior in number to that of the defenders, otherwise it may be only one-third the strength, and where no assault is intended it may be dispensed with.

Usually the Second and Third Lines will be of the same strength, and will together numerically equal the First Line; but if the force is large the Third Line should in many cases be about as strong as the First Line.

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V.

Distances.—The distances between the three bodies composing the First Line depend, as in their formations, upon the weapons of the enemy, and the configuration of the ground to be traversed in reaching him. These distances will vary as the attackers become exposed to the different kinds of fire employed against them.

The nearer the supports and reserves are to the firing line the more they will generally suffer, but if too far they cease to be effective as supports, or immediately available when required as reinforcements. At extreme distances they may move comparatively close to the front line, but on nearing the zone of aimed fire they must keep as long as possible outside the immediate area of the fire directed at it. At the same time, their approach must be so arranged that when required in the firing line they will not have inordinately long distances to traverse, and so arrive breathless at a moment when a marked effort might be required from them. The distance which separates these bodies must be decided by the officer in command, but it should rarely during any stage of the advance exceed 300 yards. After the firing line has been subjected to aimed infantry fire, the distance must be diminished and reinforcements pushed forward. Before the final assault, when the firing line commences its rapid fire, any of its supports and reserves which have not already been used up as reinforcements should join it, and open fire.

It has been found from experience that when troops armed with modern rifles come within close ranges, a crisis soon arrives, and the rapid fire which ensues cannot be prolonged more than a few minutes. Bearing in mind that on the fresh troops composing the Second Line devolves the duty of the actual assault, it is evident that this body must be sufficiently near the firing line to push boldly to the front at the critical moment. It must not, therefore, be at a greater distance in rear than can be traversed in a few minutes. During the earlier stages of the attack the distance on open ground may be about 800 yards. When, however, the supports and reserves of the First Line become absorbed, the distance should be reduced to about 200 yards; as the firing line nears the enemy's position, and the fire becomes more rapid and more intense the Second Line moves up to the firing line.

Thus the distance between the First and Second Lines when forming for attack should be about 600 or 800 yards; the distance between the Second and Third Lines will be about 1,000 yards.

VI.

Intervals.—To keep each unit in the firing line separate and distinct there will be 6 paces interval between companies, 12 paces between battalions, 30 paces between brigades, and 60 paces between divisions.

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VII.

The Front.—The front allotted to an attacking force should not exceed that which the troops composing its First Line would cover were they deployed with the intervals allowed between units in the firing line, just described.

A Battalion extends as follows:—In First Line, two half companies as Firing Line, two half companies as Supports, and two companies as Reserve. In Second Line two companies, and in Third Line two companies. Total front covered by 800 men, 212 paces.

A Brigade of four battalions extends as follows:—In First Line two battalions extend, each furnishing four half companies as Firing Line, four half companies as Supports, and four companies as Reserve. One battalion forms the Second Line, and one battalion the Third Line. Total front covered, 848 paces.

A Division extends four battalions as Firing Line, Supports and Reserves, two battalions as Second Line, and two as Third Line. Total front covered, 1726 paces.

An Army Corps usually extends twelve battalions as First Line four battalions in Second Line, and eight battalions in Third Line. Total front covered, 4802 paces.

VIII.

Conduct of the Attack.—The attack almost invariably begins with an artillery contest, and only when the artillery fire of the defence is somewhat subdued will the attacking infantry advance through the 1st zone. There must be no undue haste in this phase of the action, which is essentially a period for artillery, machine-guns, and long-range rifle volleys.

When the defender's artillery has been sufficiently reduced if not silenced, and the attacking infantry has passed into the 2nd zone, the artillery of the attack can often, with advantage, be pushed well forward to prepare the further advance.

During all the early stages of the attack, it may be expected that the enemy will have strong detachments well in front of his main position to a distance of from a quarter to half a mile. These must be driven back before the guns can be advanced through the 2nd zone, otherwise they would be within effective musketry range of the enemy. Should the advanced detachments of the enemy offer a sufficient target, the guns may select them as their first objective before directing their fire upon the defenders of the position.

If the ground affords favourable opportunities for long-range fire, companies may be detached from the reserves of the firing line to fire half-company volleys. Machine-guns used singly may also be most usefully employed against advanced detachments of the enemy, or directed upon the troops occupying the main position or against his supports and reserves if they can be seen.

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In the absence of artillery the preparation of the attack must be effected entirely by long-range rifle fire.

It may be advisable to push forward a few picked shots, usually under an officer, to drive in the enemy's scouts. Taking advantage of the ground, they will search the country in front, and act according to the requirements of the moment. As a rule, however, the firing line can clear away the enemy's scouts by its own marksmen.

At the extreme ranges, while the artillery duel is taking place, the first line will be able to advance with but slight loss; even when they first come under the unaimed or random fire of the infantry, they will probably suffer so little that the firing line may continue to advance without replying to the enemy's fire. Unless the ground is open and does not admit of a closer advance without firing, the opening of fire should be delayed as long as possible. When, however, the 3rd zone is approached, and the firing line becomes a mark for aimed fire, it will be forced to move more slowly, and its own fire will begin to tell with greater effect upon the enemy.

At several points during the advance, the progress of the firing line will be checked for the moment by the fire it is exposed to, and by the opposition it encounters; to give it a fresh impetus when its energy is temporarily expended, it will require reinforcement. The fight in front being supported and fed from the rear, the firing line will gradually work forward, making its fire tell the more heavily the nearer it approaches the enemy, who at last should be hemmed in so closely, that any attempt at a change of position on his part, which means at least a temporary diminution of his fire, will enable a forward movement to be made, or will facilitate the bringing up of a greater number of troops in a closer formation with a view to the delivery of the final assault.

Two distinct phases of the attack occur within the 3rd zone. The first may be said to begin when effective ranges are reached, and to end when the firing line by itself can no longer continue to advance; the second lasts from the time the check occurs till the position is assaulted and carried by the second line. In the 3rd zone, the firing line should always contain enough men to keep up the most effective fire upon the enemy, but its strength should not be increased needlessly.

The advance will be as long as possible in a general line, a continuous artillery and rifle fire being kept up, with a view to inflict the greatest possible loss upon the enemy, to strike dismay in his ranks, and so reduce the destructive effect of his fire. As a rule, it is very unadvisable to hasten the advance lest the men's strength should be exhausted. When the defenders' fire begins to tell seriously, it will become necessary to advance by the forward rush of alternate portions. The directing portions in advance, from under cover where it is available, deliver their fire, those in rear will then run up to

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the front line and prepare to fire; their fire will be the signal for the others to establish themselves in a fresh position by another rush ahead. Since, however, this mode of advancing is of a harassing nature, it should not be undertaken until the defenders' fire renders it unavoidable, and a slower pace would unduly expose the attackers.

During the advance through the 3rd zone the supports and reserves will send forward such reinforcements as may be requisite. Whenever the firing line seems to hang back and to be disinclined to push forward, the arrival of a well timed reinforcement gives it renewed impulsion. The constant tendency of men to close towards the points of direction, will always create gaps on the flanks of each extended portion in the firing line for these reinforcements to occupy.

It is evident that in a position of some extent there will be but few points, perhaps only one, which it will be deemed advisable to select for serious attack, and where at all hazards it is intended to drive that attack home; although the firing line must keep the enemy engaged along his entire front, it must be clearly understood that the preponderance of fire is to be directed at the selected objective points.

The duty of the firing line, reinforced by its supports and reserves, is to get as near the position as posible; but when it cannot advance further without unnecessary exposure, advantageous ground will be chosen, whence a telling converging fire may be brought to bear upon the parts of the position to be assaulted.

By the time the First Line reaches this critical distance it will have sustained such heavy losses that decisive action becomes imperative, and a fresh impulse is necessary to carry the attack forward and pierce the enemy's line.

This will be given by the Second Line which will, under cover of the First Line, have been able to advance in good order and under perfect control. Its commander having watched the opportune moment, when the defenders are sufficiently shaken, will boldly advance with the Second Line towards the point or points he has determined to assault.

On reaching the firing line, the Second Line will double through it, and, with loud cheers, carry the position at the point of the bayonet, drums beating, and bugles playing; the firing line will join the Second Line, and assist it in delivering the assault.

The Third Line, formed in the most convenient manner according to local circumstances, will work forward ready to support the attack, to meet the enemy's reserves if a serious counter-attack is made when the assault is delivered, and subsequently to confirm the success of the attack by opening a heavy fire upon the enemy as he retreats, or by the mere occupation of the captured position.

When successful, the guns will also be brought up to the position to engage the enemy's artillery; while the Cavalry and

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Mounted Infantry move forward in pursuit, harassing the retreating troops and preventing any attempt at reformation.

IX.

Fire Discipline.—Commanders should concentrate their fire on one point at a time, in preference to directing it indiscriminately over a wider area. They should cause their men not only to aim at such of the enemy's troops as may be facing them, but also at times on those to the right or left, as oblique fire is very deadly. An enemy placed behind cover which only conceals his immediate front may often be thus made to suffer severely.

To ensure that fire is always under control during the advance of the firing line, independent firing will be deferred as long as possible, and the men will only fire by command of their leaders.

To demoralize the enemy by the fire of the firing line, and of artillery, may be regarded as a necessary preliminary to a successful assault upon the most important points of his position. This has to be effected under conditions unfavourable to the attacking infantry, whose nerves will be tried during a prolonged advance under fire, the tension becoming greater as close ranges are reached and the final conflict is neared. The march before beginning the fight, the subsequent rapid advances, and the fatigues of frequent firing, will tax to the utmost the physical strength, endurance, and courage of all concerned. It is therefore evident that prompt obedience to orders, and strict fire discipline are of paramount importance. These ends can only be attained by constant practice during peace.

Especial care should be taken that ammunition is not wasted in the preparatory stages, so that when a heavy fire is required before the assault there may be no deficiency.

THE DEFENCE.

General Principles.

The formations laid down for the attack, and the general rules given for troops composing an attacking force, are in a certain measure applicable to the defence of a position.

Taken inversely, many of the principles upon which the attack is based will also be found to assist in considering the question of defence.

Although what follows will hold good in most cases, it is impossible to lay down precise instructions for defending a position, as so much depends upon its nature, extent, and surroundings, and the strength and composition of the force available for its occupation.

I.

Ground to be Reconnoitred. — Before taking up a defensive position the officer commanding the force will order all the ground in the vicinity to be reconnoitred. The officer deputed for this duty will advance with the usual precautions, preceded by scouts and flanking parties.

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As a rule, a general line as straight as possible, and without any very pronounced salients, is best for the defence. When, however, such salients do exist, accompanied by valleys running inwards, artillery may often be placed with advantage at the re-entering angles at the head of the valleys, whence they will flank the salients.

If a position is purely defensive, a river, stream, or marsh running along its front, will be of great value as impeding the assaulting troops, and yet being swept by the fire of the defence.

II.

Requirements of a Defensive Position.—The chief points to be considered in the selection of a position may be taken in the following order:—

1. The extent of the position should be suited to the strength of the defending force.

The best position, if too large for the force which occupies it, is useless.

2. It should have a clear field for fire and command of view, over the country in front, and on both flanks.

There should be no ground in front which will screen the enemy's movements, and massing of troops from observation; it should be such as will retard his advance and throw him into confusion without affording cover from fire.

3. Security for the flanks, which should rest on heights with a command of view and fire; or upon points strong for defence.

An active enemy will always try to support his frontal attack by a flank attack. Even when a flank rests upon strong natural obstacles it is almost always liable to an enveloping attack. Practically the best way to meet this is to have a strong reserve placed either behind the exposed flank, or in echelon outside it. An advanced post occupied in force on the road or line of approach, on which an enemy must march to turn a flank, will have a retarding influence which may be of much value, and a strong retired position in echelon on the exposed flank furnished with artillery will be useful in raking with its fire the flank of an enemy attempting a turning movement.

4. Good cover, especially for the supports and reserves and the Second Line.

Cover for the firing line can generally be obtained in a short time by throwing up shelter trenches, but good cover for the remainder or the defending force will almost invariably depend upon the ground falling more or less rapidly to the back of the position.

5. Good artillery positions.

Either opposite those of the enemy or taking them in flank.

6. Good lateral communications.

The means of rapidly moving troops in reserve from one part of the line to the other, so as to be able to mass them to meet the enemy

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at the points which he elects to carry by storm, are of great importance. For this purpose defensive positions should be deep, so as to give ample room for carrying out such movements.

7. Good means of retreat.

It is essential to have several parallel roads running to the rear from the centre and both flanks of the position. Provided this is secured, a certain amount of broken ground is an advantage, as preventing or checking the pursuit at different points. Any position favouring defence in rear of the first should be noted.

III.

Advanced Posts.—When the line of defence has been decided on, the ground for about half-a-mile in front will be examined for suitable positions for advanced posts, which should command all the ground which cannot be seen from the main position. They will, according to the general intention, usually consist of from a group to a company; in extreme cases it may be advisable to employ a half-battalion. Where there is no natural cover, shelter trenches should be thrown up.

IV.

Communication.—Signallers will generally be attached to the advanced posts to communicate the movements of the enemy from time to time, and to enable the commander of the defending force to issue his instructions to the advanced posts and reconnoitring parties.

V.

Ranges to be noted.—When time permits, the distances of all prominent objects in the probable lines of attack should be carefully ascertained, and noted by all concerned.

VI.

Distribution.—Troops acting on the defensive will be divided, like those formed for attack, into three lines.

The First Line.—The firing line must be as thick as compatible with a free use of the rifle at any point that is threatened as soon as the attacking force comes within effective musketry fire.

The supports and reserves will be placed concealed from the enemy's view as much as possible, well under cover, and near at hand to feed the firing line as casualties occur, or to move to important places requiring additional strength.

The distribution of the First Line will depend very much upon local circumstances, and the conditions under which the defence is to be established, whether the resistance is to be temporary or obstinate. In a close country with a commanding position favouring defence, such as the crest of a hill, or a high ridge with broken or precipitous ground in front or on the

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flanks, and a clear line of retreat, the supports and reserves may be brought comparatively close to the front and the First Line need not be so strong as if the country were open, with merely shelter trenches for the line of defence.

THE SECOND AND THIRD LINES.—The Second and Third Lines hidden from the enemy, if practicable, will be placed in a central position at first, but when the enemy's attack is developed, they should be moved, either in whole or part, to a spot whence they can make a prompt counter attack.

Artillery and infantry fire should be opened at the earliest stages of the attackers' advance; cavalry, horse artillery, and mounted infantry being pushed to the front to force them to extend prematurely.

VII.

Strength.—Including all arms and troops in reserve, it may be assumed, as a rule, that the force for the defence of a position should be equal to about 5 men for each yard in extent. The infantry, taken separately, should be about 3 men per yard.

If forced to occupy a position too extended for the numbers available for its defence, it is better to occupy it thinly and keep a strong reserve wherewith to make an energetic counter attack upon the assailants, than to distribute the force available for its defence generally throughout the position, and so be strong nowhere.

VIII.

Defending force to assume the offensive.—In defending a position, any favourable opportunity that may offer of assuming the offensive should be taken advantage of, if the force at the disposal of the general commanding allows of it; for a counter attack delivered at the right moment will disconcert the arrangements of the attack, and may often change the fortune of a day.

No position is suitable for defence that precludes the free action of the defenders in making a counter attack.

CONDUCT OF THE DEFENCE.

1ST ZONE.

When the enemy advances, the artillery, from their forward position, will force him to deploy, to disclose his strength, and possibly to declare his intentions. Parties of mounted infantry, which will have previously reconnoitred well in advance, should now, under cover of the guns, deliver long range volleys.

When the guns are obliged to retire, the batteries in the position will cover their retreat, which will be by the flanks. On the mounted infantry being driven back, the advance posts will engage the enemy and prevent his scouts, or the picked shots in his firing line from annoying the artillery.

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2ND ZONE.

Up to this point the firing line of the defence should be kept back well under cover, but as the advance posts are compelled to withdraw it should be directed to open fire by half-company or section volleys. Reinforcements will be moved up as gaps occur, opportunities being taken to keep the units intact by directing the companies in the firing line to close on their centres as casualties take place.

3RD ZONE.

As medium ranges are reached fire will be directed upon the enemy's supports and reserves as well as at his firing line. Any pre-arranged counter attack, usually by mounted troops, should at this period be boldly delivered.

The enemy's intentions will now be apparent, and the points he has selected as his objectives must be strengthened by such reinforcements as will bring a superior fire to bear upon the attackers. The Second Line will also be disposed in rear so as to best meet the enemy should he succeed in assaulting those points.

Throughout the progress of the attack fire will be delivered by carefully controlled volleys; the opportunities given when the firing line advances by alternate portions should be taken the fullest advantage of, especially when after each rush no cover is available. If the assailants are not repulsed, and reach the final stage of the attack, independent firing will be employed.

As the enemy prepares to charge, the Second Line will be ordered to fix bayonets, and, moving up to the firing line, will meet the assailants as they attempt the assault.

Should the defenders be driven from the position, the retreat will be conducted under cover of the artillery and mounted troops.

The Third Line will previously have taken up some advantageous position, if necessary, and the retirement of the First and Second Lines will be as described in S. 31.

COUNTER ATTACKS.

The question of counter attacks is one of great consequence and much difficulty in connection with the defence of a position. They may be considered under two heads: —

1. Those made by the Third line, or the local reserves of the troops actively engaged in the defence.
2. Those made by general reserves, composed of separate brigades or divisions kept distinct under their own commanders for this purpose.

The first will take place usually just as the enemy is advancing to storm the position, immediately after he has forced his way in, or just after the assault has failed.

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No large position is ever attacked along its whole front at once. Certain decisive points or keys are usually selected, and upon these only the attack is really pushed home. The consequence is that the flanks of the assaulting bodies are usually exposed to an attack in flank which should be vigorously made by the Third Line, especially when the attackers come within the 3rd Zone, and are exposed to the full power of the defenders' fire. Divisional Cavalry can be well employed in this way; a single squadron sweeping down unexpectedly on the flank of troops engaged in a severe conflict to their front, is very likely to succeed.

Again, just when the assault has been successful and the troops making it are penetrating the defensive line, their flank is similarly exposed to counter attacks by local reserves of cavalry and infantry; or should the assault fail these troops will have an excellent opportunity of turning the repulse into a disaster.

These attacks are rather in the nature of sallies from a fortress, and have rarely more than a local effect.

The second species of counter attacks made by a considerable body of troops, specially detailed from the general reserves, will exercise a powerful effect on the fate of the contending forces. The most opportune moment for action will be towards the close of the battle, when the assailants are worn out and dispirited by repeated repulses. A large body of fresh troops brought up rapidly at this period, and launched with energy in a concentrated attack upon important points, will usually produce decisive results.

Such an attack may either be made on a flank or on the centre of the assaulting force. In the first case it will be best made by previously moving the troops entrusted with the counter attack to a position beyond the flank of the line of defence, so that they may operate obliquely on the enemy's flank and envelop him. In the second case, it should be made direct on the centre of the hostile line, with the utmost determination and dash. If successful, a blow of this description will be decisive, inasmuch as the assaulting force will be divided, and the beaten fractions will be thrown back on divergent lines of retreat.

These great attacks must be covered by the convergent fire of all the batteries that can be brought to bear upon the point assailed.

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Lecture XIV.

CAVALRY TACTICS.

PREPARATION FOR THE ATTACK.—The formation of a body of cavalry for an attack depends upon the description and disposition of the enemy which it has to encounter, and also upon the nature of the ground to be traversed, which, if not known by previous observation, should invariably be reconnoitred immediately previous to and during the attack. This is best done by squadron scouts thrown out to the front and flanks, who should be instructed to fall back immediately before the actual collision with the enemy takes place.

When any body of cavalry is acting in two or more lines, each line should have its scouts thrown out to its own immediate front, in order that it may be made aware of the nature of the ground over which it will itself have to pass.

At the same time while scouts are employed to reconnoitre the ground to be traversed, other special precautions should be taken to guard against flank attacks from the enemy. For this reason, during the advance of any body of cavalry to the attack, one or two small patrols consisting of about two men and a non-commissioned officer each, and always under the general supervision of an officer, should invariably be detached to some distance on each flank as "flanking patrols," to watch the enemy's movements, and prevent the line being taken by surprise by any sudden flank attack. These flanking patrols should go out with carbines, so as to be prepared to fire in order to give an alarm in case of their meeting with the enemy. They should carefully search all ground that might afford concealment to the enemy, and should give intelligence of his movements to the main body by reports or signals. The flanking patrols should remain out in observation during the execution of the attack, and carefully watch for any attempt on the enemy's part to take the main body in flank while it is engaged in the attack to its front.

In the same way when any body of cavalry is formed under cover of ground in order to obtain shelter from fire, scouts and flanking patrols should be kept out to the front and flanks, and (if necessary) also to the rear, both as a security against sudden surprise, and to give timely information of any favourable opportunity which may occur for assuming the offensive, and unexpectedly attacking the enemy's troops.

The officer commanding a body of cavalry must, either personally or by means of subordinate officers, reconnoitre the enemy's troops, and make himself acquainted with their position and formation, so that, in preparing for the attack, his own dispositions may be such as will best enable him to out-

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manœuvre the enemy. His object should be to manœuvre so as to place the enemy in disadvantageous positions, or to betray him into movements which cause confusion, and which will thus afford a favourable opportunity for attacking him with success.

SUPPORTS AND RESERVE.

As a rule no attack should be made without a properly constituted support, and, in most instances (and *always* when attacking cavalry), a reserve to the attacking body, of nearly equal strength with it.

Each of these bodies should be in line, or in such formation that the line can be formed with the greatest rapidity. The necessity for adapting their formation to the circumstances of the ground and means of protection from fire must also always be recognised.

The distance between them should be such that, while those in rear may be sufficiently near to afford timely support to the line in front, the disorder of one should not affect the others. In most cases a distance of about 300 yards will be sufficient.

The support should never, under any circumstances, and the reserve should not as a general rule be directly behind the attacking body, but should be echeloned upon it. They should steadily follow its advance, maintaining their respective distances, and act according to its success or failure.

The best cavalry becomes to a certain extent disorganised, even after a successful attack, and it is imperatively necessary that there should be an unbroken force at hand for shelter and assistance.

The formation of even a single regiment for attack should be based on the same principle; the exposed flank should be protected and watched, and a reserve, if possible, should be kept in hand.

It cannot be supposed that, after the point of the attack is indicated, a body of cavalry can at once assume the formation in line which is required for the actual attack.

It is necessary to have a formation for advancing over rough or broken ground, or through intervals between other troops, and for utilising casual shelter from fire. While line is the formation for the actual attack, a column formation of some kind is that in which cavalry can most conveniently manœuvre with the object of passing obstacles, utilising accidents of ground, taking advantage of cover, and easily changing the direction of the advance on the move.

CAVALRY *v.* CAVALRY.

It is a principle of the highest importance that there can be no occasion on which it is permissible for cavalry to remain halted to receive an attack. A body of cavalry which remains stationary, and allows itself to be attacked by the enemy's

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cavalry, must inevitably be defeated; while superiority in rapidity of movement, and in skilful manœuvring, will in most cases compensate even for great inferiority of numbers.

As the most vulnerable part of any cavalry formation is its flank, the importance of flank attacks, and combined front and flank attacks, cannot be too strongly insisted on; and, this being the case, the necessity for guarding against such attacks becomes also evident. Hence also arises the necessity for invariably sending out flanking patrols on the flanks of an advancing body of cavalry, in order to guard against surprise from flank attacks on the enemy's part.

When a whole regiment is to be used in an attack (the support being otherwise provided for) no formation meets all necessary conditions better than that in "double echelon of squadrons from the centre." By this formation the front and both flanks of the enemy are threatened, as the flank squadrons can with ease be directed in flank attack, while the centre squadrons are making the direct attack. It is apparent also that by no other formation can flank attacks by the enemy be more easily met and checked, as the flank squadrons, being held back from the first shock of the encounter, will be available to meet any such attempted movement.

In naming the above formation as that which is most advisable for a cavalry regiment in the attack on cavalry, it is clearly to be understood that it applies only to operations on open and favourable ground. When a force is operating necessarily on a narrow front and in cramped ground, other dispositions must be made use of; but in every situation the duty of protecting the flanks and threatening those of the enemy's formation remains unchanged.

In some instances, it will be found that an attack may be successfully undertaken by a regiment with one or both flank squadrons detached to the front of their respective flank or flanks, and acting to a certain extent independently. The principle of making and guarding against flank attacks would be thus maintained, and great elasticity would be given to a force operating on broken ground.

In attacking cavalry, the attacking force gains an advantage if it can meet the enemy down hill, as the slope of the ground, if not too steep, adds to the impetus.

CAVALRY *v.* ARTILLERY.

The attack on artillery when limbered up must always be an affair of opportunity, and it is therefore not necessary to specify any particular manner in which it may best be undertaken.

It must often be the duty of cavalry, however, to attack artillery in position, and a plan of attack should be adopted which will offer the smallest advantage to the fire of modern field guns.

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It is obvious that if in any way possible, artillery should under all circumstances be attacked by cavalry on the flanks or in the rear.

If this cannot be done, however, it is most unadvisable that an attack should be made by cavalry in a close formation, and therefore extended order should generally be employed.

In attacking artillery escorted by other troops, there are two distinct objects—the one to attack the guns, the other to attack the escort protecting the guns. The attack on the guns should be made in extended order; that on the escort, when the latter consists of cavalry, should be made in close order.

The attack on artillery in position will be made:—

(*a.*) Either for the purpose of causing so much annoyance that the guns must limber up and move to other ground.

(*b.*) Or with the intention that the guns shall be either captured or disabled from further service.

In attacking a battery for the purpose of making it quit its position, unless it is protected by more than an ordinarily powerful escort, two squadrons should suffice.

Of these squadrons one should be formed in extended order, and should make a converging advance. The other squadron should be in support, formed in line at close intervals.

If the battery shows no disposition to retire, the squadron in extended order must rapidly attack, closing in towards the guns on one or both flanks of the latter. The supporting squadron must also advance at a gallop, taking such advantage of ground as it can to obtain shelter from fire, and must manœuvre against the escort, with the object of endeavouring to take it in flank or rear, and of preventing its acting against the squadron in extended order which is engaged in the attack upon the guns. When circumstances are favourable, the mounted attack upon artillery in position may also sometimes be supported by the fire of dismounted men.

If it is resolved to secure the battery, or prevent it from again coming into action, the force should make a converging attack on its position, squadrons being formed in extended order, and acting independently of each other, in the way most suitable to the ground to be traversed. The effect of the fire of the guns will thus be very greatly reduced, and the attack if pushed home, must succeed. But in any case, when attacking artillery which is escorted by cavalry, it is most important that a compact support should be kept in hand to act against the escort, in the event of its threatening the troops in extended order.

Note.—If at any time it is necessary to arrest the progress of a battery, no measure is so effectual as shooting one of the wheel horses.

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CAVALRY *v.* INFANTRY.

As a rule, the attack of infantry by cavalry will only be undertaken under the following circumstances:—

(*a.*) When infantry is either demoralised or of inferior quality, in which case it is at all times at the mercy of good cavalry.

(*b.*) When cavalry, from the nature of the ground, or from misty atmosphere, &c., &c., are able to approach to within a short distance of infantry unperceived, and can thus take them by surprise.

(*c.*) When infantry has been already broken and partially defeated by the fire action of opposing infantry or artillery, or when it has expended its ammunition.

(*d.*) Cavalry may usefully threaten to attack skirmishers, so as to delay their advance, and by inducing them to close, cause them to offer a better target for the fire of artillery and musketry.

As in the attack on cavalry, the best formation for the attack on infantry will be found to be the "double echelon of squadrons from the centre." In every case, however, the facilities afforded by the nature of the ground must determine, in a great measure, the particular formation to be employed.

A succession of attacks in column over the same ground should never under any circumstances be made use of. All attacks should be either convergent or in echelon.

In threatening to attack skirmishers, with the view of arresting their progress and forcing them to close, the mode of attack in "extended order" may generally be employed with advantage.

The effect of the fire of a body of infantry is always much greater towards its left flank than towards its right. It follows, therefore, that if a choice is afforded, the right flank of an infantry formation should be selected for attack.

It has been noticed that in attacking cavalry, an advantage is gained if the enemy can be attacked down hill.

In attacking infantry, however, the reverse is the case; infantry are always apt to fire high, and therefore advancing up a slight incline against them is rather an advantage.

THE EXECUTION OF THE ATTACK.

Cavalry can only be used on the offensive, and therefore all the different movements which it practises, should have the intention of placing it in the most advantageous situation for attack.

The charge is that attack made with the greatest velocity and regularity possible in order to break the formation of the enemy.

Whatever distance a force has to go over, it is most important that the space to be traversed under the enemy's fire should be passed over at a rapid pace. From the moment, therefore, that the force becomes exposed to fire, if the nature of the ground will permit, the leader should move at a brisk trot till within about 500 or 600 yards of the enemy. He should then

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give the command "*Gallop*," and gradually increase the pace till the force arrives within about 50 yards of the point of attack, when the word "*Charge*" will be given, and the pace increased to the utmost rapidity which the body can bear in good order.

The distances, as noted above, are to be understood as referring to the attack by cavalry on a force in position. If the enemy is advancing to meet it, the pace must be increased at the discretion of the commanding officer, so that it is greatest at the moment of encounter.

When the shock of the charge has broken the enemy's order, one or both flank troops in the case of a single regiment, or flank squadrons in the case of a brigade, may be ordered to pursue and follow up the advantage, opening out and covering the front and intervals, whilst the remainder of the force keeps together and supports; but their great object should be instantly to rally and be able to renew their efforts in a body. It is most important that cavalry engaged in a pursuit should not be allowed to get out of hand of their officers.

If the force fails in the attack, officers must prevent their men from falling back directly on the support. They must lead them clear of its flank or flanks and rally them under its protection. Nothing can be more fatal than a disordered body throwing itself back upon a force advancing to its assistance.

A direct attack on the enemy's front should invariably be supported by an attack on one or both of his flanks, made either obliquely or at right angles, to the line of the frontal attack. Such flank attacks should be executed by wheeling up a portion or the whole (according to circumstances) of the troops echeloned in rear of the flanks of the first line.

DUTIES OF SUPPORT.

With a body of cavalry formed in three lines, while the first line advances to the principal attack, the support, following in echelon in rear of the exposed flank, should co-operate with, and assist, the direct attack by manœuvring against the flank of the enemy. The duties of the support are:—

(*a.*) To be prepared to meet any flank attack on the enemy's part, so as to relieve the first line from all anxiety for the security of its flanks and rear.

(*b.*) To support the direct attack of the first line by threatening and attacking the enemy's flank, and thus, in the event of a successful charge, to protect the first line from a counter-attack by the enemy, or to follow up and reinforce the attack, in order to improve and complete the first advantage.

(*c.*) In the event of the failure of the principal attack, to cover the retreat of the first line, and endeavour to effect a diversion by acting against the flank of the enemy.

The support must, in short, be constantly in readiness to take part in the action, either offensively or defensively, according to circumstances.

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Occasions may also occur when it may be of advantage to employ the first line in manœuvring to gain the enemy's flank, and thus to betray him into some movement which would afford a favourable opportunity for attacking him with the support, on which would then devolve the duty of making the principal attack. It must be left to the judgment of the commander of the whole force to decide, according to the circumstances of the moment, in which it may be most advantageous to employ the two lines respectively.

DUTIES OF RESERVE.

The reserve should, as a rule, be kept in hand as long as possible, and not be employed until a critical moment has arrived, when it may be effectively used to reinforce the first line and support, and either decide the victory or ward off the result of an unsuccessful attack, and arrest pursuit.

During a pursuit by one's own troops after a successful charge, it is especially important that an intact reserve should be kept in hand, in case of the enemy renewing the attack with fresh troops. There are few occasions when cavalry is less able to defend itself than immediately after a successful charge. The natural tendency to pursue after success increases the disorder necessarily caused by collision with the enemy. It is a general maxim that in cavalry engagements the advantage in the end rests with that side which can last bring fresh and unbroken troops into action.

For the same reason the support should never, as a general rule in attacks against cavalry, be wholly expended unless a third line is at hand. When this is not the case a portion only of the support should be employed in co-operating with the first line, so that, under all circumstances, the principle may be maintained of keeping an intact reserve available to the last possible moment, in order to meet critical contingencies.

GENERAL OBSERVATIONS.

The main essentials to the success of a cavalry attack are that it should be well-timed, rapid in execution, and, if possible, sudden and unexpected. The opportunities for making an attack with cavalry under the most favourable circumstances quickly pass away. Whenever they occur they must be instantly seized, and it is therefore absolutely essential that a constant and careful watch should be kept for such opportunities by a well organised system of reconnoitring, conducted by scouts and flanking patrols.

Although cavalry should never be unnecessarily exposed in masses to the fire of artillery or infantry, occasions will occur when it must run the risk of such exposure, and even be prepared to sacrifice itself, in order to effect an important object, such as to check the enemy's advance at a critical moment, or to afford support to the other arms. The importance of the object to be gained will often be sufficient to compensate for the losses

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incurred by exposure to fire; and, when this is the case, the commander of a body of cavalry must never for a moment hesitate in bringing his force into action at any risk.

With the increased range and rapid fire of artillery and small arms at the present day, it is most essential that cavalry should (1) remain if possible, under cover until required to act, and (2) move at a rapid pace when advancing to the attack over open ground, in order to reduce to the utmost the period during which it remains exposed to the enemy's fire. In carrying out sudden attacks, which may be made unexpectedly under cover of favourable accidents of ground, the success of the attack depends mainly on its being executed with rapidity. In short under all circumstances, cover when not in action, and celerity in manœuvering is essential to the success of cavalry movements; as without it greater risk is incurred from exposure to the enemy's fire, and favourable opportunities for attack are lost.

DISMOUNTED SERVICE.

Now that cavalry are armed with breech-loading rifled carbines, capable of sustaining a rapid and accurate fire at long ranges, dismounted service is of great importance, and should be constantly practised.

The cavalry soldier should, when mounted in the ranks, depend on his sword, or lance, and horse alone.

The carbine must only be used when he is acting on foot, or, when mounted, for the purpose of giving an alarm.

There are many positions in which cavalry may find themselves placed, particularly in an enclosed country where they cannot attack an enemy mounted, in which, if able to act quickly dismounted, under cover for themselves and their led horses, their services may be most valuable.

The following general rules should always be borne in mind:—

(1.) Cavalry should never be dismounted in any position when mounted opposing cavalry have a chance of attacking them before they can remount and be ready to meet the attack.

(2.) They should never dismount in a position where their led horses would be under any direct fire.

(3.) The nearer they are to their led horses when dismounted the better, as they can more rapidly rally and mount; their fire will also be more effective, as they can allow the enemy to approach within easy range.

(4.) Rapidity of movement is essential in preparing for dismounted service, in order, if possible, to surprise the enemy in close formation, before they can bring a fire to bear in return, or retire under cover or out of range.

It is impossible to lay down exact rules for dismounted service, as the proportion of dismounted men required, the cover available for their support and led horses, and the nature of the ground or roads, must vary in every case.

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The positions in which cavalry would generally be required to act dismounted are:—

(1.) In open undulating ground where rapid movements can be effected, shelter obtained, and cavalry (or artillery limbered up) can be harassed.

(2.) On ground where advanced or rear guards can harass or keep in check cavalry or artillery, owing to some obstacle, such as a bridge, ford, &c., intervening, which the enemy cannot cross without delay and exposure.

(3.) In roads and enclosed country, where cavalry is exposed to direct fire in column at long range, prior to attack mounted; or, where, from banks or fences intervening, a flank fire can be brought to bear on an enemy moving on a parallel line.

(4.) In outbuildings or farm-yards, where an inferior force might keep cavalry in check without danger of being outflanked or surrounded.

(5.) Where patrols or scouts fall in with opposing detached bodies sent out to reconnoitre.

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Lecture XV.

ARTILLERY TACTICS.

Woolwich Lectures Colonel Pratt, R.A.

"The general principles regarding the employment of artillery have been in no wise affected by the introduction of modern rifled guns. Its action consists in fire alone, and mainly in fire at ranges beyond the effective limit of the infantry weapon. It has firstly to *commence* and carry on the action at long range, dealing destruction to the hostile men and material at the period before the action of the other arms is possible: secondly, to *maintain the fight*, to reduce to a minimum effect the artillery and infantry fire of the enemy, and thus enable the infantry of its own side to advance, or throw confusion into the ranks of an attacking enemy; and thirdly, to co-operate with the other arms in dealing a final blow at the hostile line, following up its retreat if victorious, or covering the retirement of its own side in case of defeat."

THE ATTACK.

The artillery of an army advancing to the attack, will hasten to the front and take up a position, usually about a mile or thereabouts from the enemy to open the action. In doing this it will become a mark for the defender's guns which will open upon it immediately it appears, and endeavour to silence it before the attacking infantry comes on the scene.

The attacking guns return the fire from the defender's artillery and thus the battle commences with an artillery duel.

Meanwhile, the attacking infantry are arriving at the scene of action and getting into attack formation. When they are ready to advance, the attacking guns turn their fire upon the defender's position, trenches, and general infantry line; to break up obstacles, make breaches, and shake the *morale* of the defenders by shell fire.

As the attacking infantry draws close up to the position, the fire of the attacking guns will be more or less "masked," and they should then limber up and move forward at speed to support their infantry at the critical moment, by engaging the enemy at close ranges of about 600 or 700 yards.

This forms one of the exceptions to the rule that guns should never come under infantry fire. The advantage of the immense moral support thus afforded to the attacking infantry should outweigh all other considerations, and, moreover, the risk to the guns is diminished by the fact that the defending infantry are too much occupied to bestow much attention on them. Any of the attacking guns which from casualties, local impediments, etc., are unable to advance, should continue their fire on the defending guns or any available part of the position.

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Prince Hohenlohe.

"How can you expect a gunner to watch his comrades of the infantry charging at the last and hottest crisis, without longing to be with them?..... Artillery which leaves its infantry in the lurch in its efforts to avoid the zone of infantry fire, shews plenty of head for its own interests, but no courage at all and would be useless."

Should the attack succeed, every available gun must hasten forward accompanied by cavalry, to confirm the success and fire on the retreating enemy.

Should the attack fail, the attacking guns, aided by the cavalry, must cover the retreat of the now broken and repulsed infantry; even if it comes to firing case. The usual method of covering the retreat is by taking up successive positions; or by retiring in *echelon* of batteries.

THE DEFENCE.

The defenders will have received warning from their cavalry screen of the approach of the enemy, and if time has permitted, the ranges of all spots on which the attacking guns are likely to take post, have been carefully ascertained. Immediately the attacking artillery shows, the defending guns, as already stated, open fire on it.

Woolwich Lectures Colonel Pratt, R.A.

"In the great artillery duel which ensues, there is a difference of opinion as to whether any of the guns of the defence should be kept in reserve. The matter seems to depend on the relative power of the two forces. A number of guns somewhat inferior to those of the assailant should be able to prevent him obtaining the mastery. If the defender has more than these available they might with advantage be retained as local reserves, and reserve their fire till the infantry attack begins to be delivered. If the defence, however, is palpably inferior, it should by the deployment of every gun, delay as far as possible the final assault. In the event of *great inferiority* when the batteries are overwhelmed with concentric fire, it will be generally advisable to withdraw a considerable proportion of the guns under cover, and keep them ready to come into action against the infantry when it advances."

This theory is denied by the Germans who argue that as you cannot tire a gun by firing it, every gun kept out of action is a gun wasted. Moreover, Prince Hohenlohe says—"If in the artillery duel, the attack is allowed to gain any predominance, the guns in reserve will never be able to re-adjust the balance. Therefore employ all your guns from the outset."

The artillery duel is followed by the advance of the attacking infantry. Now is the time for the artillery of the defence to neglect all other objects and considerations, and to pour the fire of every available gun on them, for the infantry must be repulsed at all hazards.

Supposing the attack to succeed, the defending guns aided by their cavalry must cover the retreat as already described. Should the attack be repulsed, the defending guns hasten forward in conjunction with the cavalry to turn the repulse into a rout.

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GENERAL REMARKS.

It has been already stated that although artillery should not as a rule come within infantry fire, there are occasions when it may and should do so.

Military history abounds with instances of gates and barriers blown open, of attacks succeeding, of defences prolonged, of exhausted infantry supported and encouraged, and of doubtful battles decided by the opportune arrival of guns in the thick of the fight, and by the actual and moral effect they produced.

German Official Account.

In the war of 1870 we read:—"Conspicuous in the first place in contrast to former times is a great change in the employment of the German artillery. Placed at the head of the marching columns, it appeared with the foremost on the field of battle, mostly preparing the great offensive blows. Fearlessly holding to the position which it once took up, it may be said to have formed a solid framework to the order of battle."

"In the German leading, the effort was conspicuous to employ the artillery at the *outset in masses* and afterwards in the most intimate connection with the task of the infantry. Proceeding in this wise, the one great battery at Noiseville on the 14th of August was sufficient to protect the momentarily threatened right wing of the First Corps. On the 18th, the formidable array of guns near Gravelotte, also secured the right wing of the Germans against any breaking forward on the part of the enemy until the decisive blow in the north could be prepared by other bodies of artillery; and not until these had been in action some time, was the blow struck by the infantry. And again, on the other hand, German batteries *accompanied* their infantry to close quarters—on the 14th past La Planchette and Lauvallier; on the 16th past Mars la Tour and towards Rezonville; and on the 18th past Gravelotte, Vernerville, and St. Ail."

In fact the whole theory that field artillery should never come under infantry fire, is now scouted by the Germans as a consequence of their experience of 1870.

Prince Hohenlohe.

"There were hundreds and thousands of cases in the war of 1870-71, where artillery which refused to retire, could not be driven back by infantry fire. Thus we may consider the decisions of the umpires at Kriegspiel and manœuvres, that artillery should be compelled to allow itself to be driven back by infantry fire, as the most unnatural of all decisions. Such decisions are also ruinous in their consequences, since when they are constantly repeated during a long interval of peace, all artillery officers who have not seen war, end by believing that artillery cannot stand its ground against infantry, and the natural consequences of this will be that they also, as so many others have already done, will in war at once give way before the fire of infantry,.....I repeat once more and I cannot too often repeat, that *artillery cannot generally speaking, ever be driven back by infantry, if it refuses to leave its ground.* On the contrary, when the infantry fire is really hot, it cannot fall back, since too many of its horses will then be shot.....If artillery wishes to save itself, it must kill its enemy by its fire. This is its only safety as far as I can see. If acting thus, it does not save itself, it will at least save its honour."

As the correctness of the following account is admitted by the other side, it may be worth quoting.

"We had not long to wait for the first movement which the enemy's infantry was to make in our direction. It advanced in quarter column from Amanvilliers and attacked us energetically. When the head of the column became visible over the hill, our trial shots reached it at a range of 1900 paces, and my thirty guns opened a rapid fire. The enemy's infantry was enveloped in the thick smoke which the shells made as they burst. But after a very short time we saw the red trousers of the masses which were approaching us, appear through the cloud. I stopped the fire. A trial shot was fired at 1700 paces range; this was to show us the point up to which we should let them advance before

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re-opening the rapid fire. We did the same for the ranges of 1500, 1300, 1100 and 900 paces. In spite of the horrible devastation which the shells caused in their ranks, these brave troops continued to advance. But at 900 paces the effect of our fire was too deadly for them, they turned short round and fled. We hurled shells after them as long as we could see them. Here was an infantry attack which was repulsed purely and simply by the fire of artillery. A few years later I had an opportunity of talking with an aide-de-camp of General de Ladmirault and the very man who had carried the order to make this counter attack, and who had been present during its execution. Two regiments of infantry had been despatched on this duty. The French officer said to me "It was impossible to succeed. You have no idea what it is to have to advance under the fire of your artillery."

POSITIONS FOR ARTILLERY IN ACTION.

Woolwich Lectures Colonel Pratt, R.A.

A good artillery position should have a clear open range to the front, the line of guns being as even as possible and perpendicular to the line of fire. A ridge sufficiently high to see over all the ground in front, with a slope behind it to give cover to limbers, and marshy ground or a slope in front, sufficient to catch the enemy's shells, provided it does not interfere with forward movement, is advantageous. The tops of high hills not so good as those of medium height, as they are difficult to get up and advance from, and the effect of common shell is diminished. There should be as little cover in front as possible for the enemy to utilise, and the vicinity of woods, houses, trees, or any conspicuous object in rear should be avoided. Stony ground or stone walls in immediate front to be avoided, and the space in rear should be sufficiently open for guns to come into action simultaneously. The presence of natural cover such as houses, trees, hedges some distance in front, which can be just seen over, seems often an advantage, as it renders it difficult for an enemy to estimate the correct range An immediate back-ground such as a wood or village, makes guns very visible, but a distant similar back-ground is generally an advantage. The flanks of artillery in action are weak points and care must be taken to protect them as far as possible. If secured by neither troops nor the nature of ground it is advisable to retire the flank batteries in *echelon*.

CONCENTRATION OF FIRE.

There are two ways in which artillery fire can be concentrated on any given spot. (1) by massing batteries together; and (2) by dispersing batteries but concentrating their fire; which with the great range of modern guns, can always be done.

The former method is generally preferred, for the following reasons. The guns are under a single control; words of command, orders, and correct ranges, are easily circulated, casualties are little noticed, and the effect produced is greater. On the other hand, an immense target is offered to the enemy, and should a retreat become necessary there is some risk of confusion and loss.

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GENERAL PRINCIPLES.

Lecture at U.S. Institution Captain R. F. Johnson, R A.

"To sum up I ask your consideration of the following principles for handling field artillery

1. *The battery of six guns is the fire unit*, and want of room is the sole admissible excuse for dividing it,

2. The normal unit of manœuvre is the "group," or in official language the "Division," composed of two or three batteries.

3. The sole aim of artillery is to support the other arms; saving them from loss by weakening the enemy and by attracting his fire, and encouraging them by its company in all phases of the battle.

4. An Officer commanding a mixed force must give sufficient instructions to his artillery. He is responsible for its position relative to the other troops and for the general character of its tactics. The arm that has to prepare the way for the others cannot be left to conform to their movements. Without an active brain the limbs cannot co-operate.

5. All guns are to be used as soon as available. A gun out of action is a gun wasted and only an encumbrance.

6. No gun can be retired without the sanction of the Officer commanding the troops. He alone can judge of the expediency.

7. The ranges should be as short as circumstances permit. The nearer the gun is to its target the surer it is to hit, and to hit is everything. But *in the earlier stayes* of the combat too much risk of damage to mobility should not be incurred, and the advantages of the long-range fire of modern guns should not be forgotten.

8. The supply of ammunition must be ample, and it must be near at hand."

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Lecture XVI.

THE THREE ARMS IN COMBINATION.

All officers should study and understand the characteristics and functions of the three arms, in order to qualify themselves for the command of a mixed force. Such knowledge tends to smoothness in working, ensures a proper distribution of work and minimises the friction inevitable on active service. Moreover, it prevents such absurdities as infantry in marching order being expected to "double" for prolonged distances, horse artillery being ordered to "charge" a body of infantry, guns being ordered to fire "grape" at a range of 800 yards, or an officer in command of a force of the three arms in an enemy's country, preparing for action by issuing an order that his command was to "form line of battle," under the impression that the three arms would "drop into their proper places" of their own accord.

N.B.—None of the above are imaginary.

But although an officer commanding a mixed force should know the duties and functions of the various arms, he should not attempt to undertake or interfere with the technical details belonging to each. These should be left to the respective commanding officers.

THE ATTACK.

Modern warfare points clearly to the conclusion that *a properly prepared and conducted defence* is invincible by a frontal attack.

For example:—At Wörth, the Germans made a frontal attack, and notwithstanding the gallantry of their infantry and the overwhelming fire of a superior artillery, made no impression until superiority of numbers enabled them to surround and crush in both flanks of the French army.

Niemann. Thus between one and two p.m., the bow of the German front of attack had been drawn closer and firmer round the French position and encompassed it from north to south.

Again, at Gravelotte the Germans attacked the French at noon and no impression was made along a front of nearly eight miles, until the right flank of the French was turned and driven in at 6 p.m.

Ibid. In conformity with the dispositions of the chief command, the German right wing thus held the enemy fast, even to the centre, without pressing him too strongly, until the left wing was able to surround the French right.

But it does not follow that a frontal attack is useless, on the contrary, the enemy must be engaged along the front, to give a turning movement a chance of success.

At the Peiwar Kotal a frontal attack against a naturally almost impregnable position, was made for the avowed purpose of holding the Afghans and engaging their attention, pending the

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execution of a flank attack. And at Laing's Nek a purely frontal attack failed completely.

Again, when the French army was imprisoned in Metz after the battle of Gravelotte, the *onus* of attack devolved upon them if they wished to break out, and this they failed to do principally because the Germans having drawn their line of investment completely round them, there was no flank to attack.

The moral of this is clear, that an attack must be made with superior numbers or its equivalent in *morale* and quality of troops. The old idea of penetrating and storming a decisive point *in* a given line of defence appears to have passed away altogether.

Boguslawski

In the wars of the Revolution and Napoleon I., there were many cases in which inferior numbers gained decisive advantages. Now, since the introduction of breech-loaders, the chance of attacking with inferior numbers successfully, even supposing superior generalship on the side of the assailant, has been reduced to a minimum, if the troops are of equal quality, because the direct attack being beset with immense difficulties can hardly ever succeed at once and generally resolves itself into a long, stationary or slowly progressive musketry engagement. Hence ensues the necessity for a turning movement, which however is only practicable for a superior force.

Great tactical attacks will therefore take the form of turning movements as was the case at Gravelotte and Sedan, which movements we may confidently consider to be as much characteristic of the battles of these times, as the practice of breaking through the centre was characteristic of the battles of Napoleon I.

The arrangement and conduct of these great turning movements fall within the province of Higher Tactics rather than of Minor Tactics. The following rules are however, taken from a variety of sources and are here given.

1. Reconnoitre the position to be attacked, as far as possible by means of the advanced cavalry and by staff officers.
2. Attack at the earliest possible moment, because every hour of delay means so much additional fortification and strength for the position. As a rule the assailant has nothing to gain by delay, while the defender can improve every minute.
3. Keep small reserves in hand along the line of attack, independent of the turning force, to confirm a success or check a counter attack.

THE DEFENCE.

Defence is of two kinds, "active" and "passive." The former implies a defensive attitude and defensive tactics only until an opportunity arrives for assuming the offensive in the shape of attacks or counter strokes; the latter implies simply repulsing attack without following up such repulse.

It has often been observed that pure or passive defence can never win a battle, and as far as regards the actual battle-field this is doubtless true. But moral or political circumstances may so influence the situation that a passive defence, if protracted, may eventually be equivalent to victory. Perhaps the best instance of passive defence is Plevna, and it is not saying too much that had not famine put an end to it: the whole course and possibly the result of the war would have been changed.

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Again, the passive defence of Laing's Nek achieved all the results sought by the defenders.

But as purely passive defence is a matter of necessity, from inability to assume the offensive, we may include it in the active defence for purposes of study, as the same rules, up to a certain point, apply to both.

In taking up a position for defence, the first thing to consider is the strength of the force which is to hold it. As a general rule five men per yard of all arms, or three men per yard of infantry is the proper proportion, unless the ground is unusually favourable for defence, when fewer will suffice.

The following conditions should as far as possible be adhered to:—

1. A clear field of fire and a command of view over the country in front and on the flanks.
2. Good artillery positions in rear of the infantry line.
3. Good cover for supports and reserves.
4. Extent suited to the numbers of defenders.
5. Security for flanks.
6. Free and sheltered communications throughout the position.
7. Facilities for counter attack, if such be contemplated.
8. Facilities for creating strong points and for protecting the whole or parts of the line by obstacles, according to circumstances.

"That all these advantages are to be found in any position is not to be expected; *but a clear field of view and for fire is now so essential, that if it does not exist or cannot be made within the time and means at one's disposal, a position can rarely be tenable.*"

Never commit the error of throwing out skirmishers in front of a previously prepared defensive position. Skirmishers were once used to cover the front of small columns behind which they rapidly retired before the real fighting commenced. But when your line of defence extends for two or three or more miles, the skirmishers cannot clear the front, and must retire into it, completely masking the fire from the position at the critical moment.

COUNTER ATTACK

should never be undertaken without order, and when made should not be carried out by troops in the first line of defence, but by local reserve.

General Schaw R.E.

The examples from late years are so numerous in which the attempt of the first line to attack directly to its front proved futile and wasteful of life that this mode of action may be deemed inadmissible. . . . In 1870 and 1874, French and Spaniards have alike boldly left their trenches and rushed at their enemies, and alike they have suffered for their temerity without deriving any advantage from it. As examples, the French advance out of their position on their left at Gravelotte and the Carlist bayonet attacks on Republican troops endeavouring to storm their trenches may be cited. . . . . If an attack is properly supported by artillery and reserves of infantry, such counter attacks evidently must fail because the numbers are too small, and the troops so leaving their shelter and ceasing their effective fire, both incur heavier losses themselves and also fail to inflict so much loss on their enemies as they would do if they continued to fire steadily from their trenches.

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Most authorities agree that counter attacks may be made by local reserves when an attack against any portion of a line has failed, but such counter attack must be purely local, and must never be allowed to become pursuit. Also when the assailant having been repulsed, or unable to make any impression along the whole front has evidently exhausted his strength. In this case the counter attack should be general and should seek to turn repulse into defeat.

RESERVES.

"The *Reserve* represents a formed body of fresh troops at the disposal of the general commanding. No body of troops should ever engage without a reserve, its strength must depend on the nature of the position to be attacked, and the probable strength of the defending force. In the case of a Division, the seventh Battalion will form the Reserve. With an Army Corps one Division will form the Reserve."

Thus it would appear that about one-third to one-sixth of any force should form the Reserve, but the proportion must be decided by the general on the spot.

The functions of a Reserve are, by judicious and timely employment to avert impending defeat, or turn a doubtful battle into victory. Circumstances alone can decide the precise time and manner in which it should be used.

With regard to the position of the reserve, the modern tendency is to have numerous small reserves instead of one large one. The present system of always turning one or both flanks necessitates a reserve in rear of each wing, and there should always be small local reserves wherever they may be considered necessary.

At the battle of Gravelotte, Marshal Bazaine held one corps in reserve, the Imperial Guard, and stationed it in rear of his extreme left. As it happened, its presence there was wholly unnecessary, whereas it was urgently required on the extreme right, which owing to the distance—seven miles—it was unable to reach in time to prevent the turning of the flank, and the defeat of the French. Had half of the corps been in reserve in rear of each wing, the battle might have had a different result.

THE THREE ARMS IN ACTION.

Let us now suppose one army A, advancing to attack another army B, drawn up in position, and follow the course taken by the various arms.

A's cavalry screen in front first comes upon the cavalry parties of B which would probably be thrown out, and drives them in. They then proceed to reconnoitre the position as far as possible, after which they form up under cover, usually on the flanks, to await events. Next, the advanced guards of A's various columns appear, halt, and commence forming up for attack. Meanwhile A's artillery hurries up, takes up position about a mile from the enemy, and engages the artillery of B, thus

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opening the battle with an artillery duel. During this duel the infantry of A are coming up, and on reaching the general line of their own guns are formed for attack. When all is ready, A's guns turn their attention to the trenches, &c., of B's position to prepare the way for the infantry, and the advance commences. Now is the time for B to turn the fire of every gun on the attacking infantry, which must be repulsed if possible. As A's infantry approaches the position, a portion of A's guns should advance to support it by engaging the enemy at closer ranges. The infantry attack having been pushed home, will either succeed (*a*) or fail (*b*).

(*a.*) The position being taken, A hurries up his cavalry and guns, supporting them if possible by reserves of infantry to follow the retiring foe or to meet the counter attack, which may now be looked for.

(*b.*) The infantry of A being repulsed, B follows them up vigorously with his cavalry and guns, supported by his reserve infantry, while A's cavalry and guns cover the retreat, supported if possible by their reserves.

THE ATTACK AND DEFENCE COMPARED.

General.

The attacking side can choose the point of attack and time of attack.

The defence must conform to the attack.

The attack can be made concentric, the defence is more or less divergent.

Cavalry.

The Cavalry of the attack have probably had hard work in scouting and reconnoitring, and are not acquainted with the ground in front of the position.

The Cavalry of the defence have probably pushed forward a few miles in front of the position and remained there in observation, consequently they should be fresher than the Cavalry of the attack. They ought to be thoroughly acquainted with the ground in front of the position, and should know where they can act, and where they cannot.

Artillery.

The Artillery of the attack have to drive up and find positions from which they can open fire. They have to find the range of the position, and this under the fire of the defending guns. They are not acquainted with the ground over which they may subsequently have to advance.

The artillery of the defence have had time to place their guns under cover.

They can also ascertain the exact range of every spot in front of the position where the attacking guns can take post.

They should be well acquainted with the ground in front of the position, should have arranged their lines of advance, in the

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event of a counter attack being ordered, and should have noted all points in front, to pass which will necessitate even a momentary concentration of the attacking Infantry.

Infantry.

The very fact of attacking carries with it a certain moral power which excites the men.

Although the men cannot fire very steadily and are often exposed, yet they only offer a running target to the enemy.

They leave their killed and wounded behind them as they advance.

The defending side can choose their ground and entrench themselves.

Their fire is delivered by men in position, who are more or less covered, and who ought to be cool and aim well.

They can study the conformation of the ground, utilise its advantages, and move men from place to place as required.

On the other hand the defence is more trying to the nerves than the attack. The defenders must await the attack in suspense. They are exposed to a preliminary shell fire, and sometimes to cross fire from the attacking guns, which is very trying.

Their dead and wounded lie where they fall, by the side of their comrades, which is not encouraging.

PURSUIT.

The word "pursuit" is conspicuous by its absence from our cavalry regulations, and, judging from the experience of recent European wars, it will soon become a lost art.

Pursuit must always be an affair of opportunity and inspiration, and the only rules that can be laid down are that the flying enemy should be pressed not merely in rear, but on the flanks, and that the cavalry, on whom this duty mainly devolves, should keep parties in support of those actually pursuing.

RETREAT.

"The parks of stores and provisions in rear should commence moving about sun-down, followed by the baggage. If possible it is better the troops should move a couple of hours before daybreak. They will then have got sufficiently far to the rear before it is light, so that the dust occasioned by their march may not be visible to the enemy. Only cavalry outposts should be left in front of the enemy. These outposts should not retire until forced to do so. Then, aided by a few guns, they can do so slowly." Lord Wolseley.

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Lecture XVII.

MARCHES.

The space occupied by troops on the march has already been fully considered.

In arranging a march, two great and generally conflicting questions have to be considered, namely the "tactical" and the "administrative."

In peace time or when not near the enemy, administrative considerations may be allowed to preponderate and the comfort of the troops studied as far as possible.

For instance, if a march of the three arms is to be made, and a choice of roads exists, give infantry the shortest, cavalry the softest, guns the hardest and smoothest. Or should only one road be available, the mounted branches might be allowed to precede the infantry by an hour or so, partly because it is most fatiguing to horses to have to conform to the slow pace of the infantry, and partly on account of the extra labour devolving on mounted men at the end of the march.

ORDER OF MARCH.

On service everything must give way to tactical considerations, in other words, order of march must be regulated by order of battle.

The following order of march for a complete Division on a single road, is that recommended by the Quarter-Master General and will serve as a type for general study.

Assuming that the advanced guard consists of two squadrons, one battalion, and two guns, the remainder would march in the following order:—

Two squadrons of cavalry.
General and his staff.
1st battalion of leading brigade.
Divisional artillery (3 batteries).
Three remaining battalions of leading brigade.
Small arm ammunition carts of leading brigade,
Intrenching tool carts of leading brigade.
Forge waggons of cavalry regiment.
Second brigade (4 battalions).
Small arm ammunition carts.
Tool carts.
Infantry and artillery reserve ammunition train.
Ambulance and field hospital.
Led horses.
Interval of 100 to 1,000 yards, according to proximity of enemy.
Non-combatant staff.

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Military police.
Baggage of Divisional Head Quarter Staff.
Baggage of troops according to their order.
Commissariat train.
Military police.

Allowing for opening out, half-a-mile between the rear of the advanced guard and the head of the column, and a similar distance between the rear of the column and head of the baggage column; the whole would occupy from seven to eight miles of road.

PACE.

The pace decreases as numbers increase. In small bodies, infantry may do two-and-three-quarter miles an hour, field artillery three-and-a-half, horse artillery and cavalry five.

In large bodies the rate is much slower, and infantry can only do two-and-a-half and two miles an hour, even with good roads and good arrangements. The other arms on service, must of course conform to the infantry.

Bad roads make the pace very slow. For instance, in 1815, Marshal Vandamme marching from Ligny to Wavre, took seven hours to do ten miles. In the same campaign, Blucher's army marching from Wavre to Waterloo, could only accomplish one-and-a-half miles an hour, owing to the state of the roads.

In 1859, Marshal Canrobert's corps which was sent for in all haste to support the Guard at Magenta, took five hours to march nine miles. The road in this case was good but blocked and encumbered with baggage. In 1866, the 8th Austrian corps marching to Sadowa, took fourteen hours to do twelve miles.

In 1870, when the Crown Prince was following McMahon northwards, his troops were sometimes on their feet from 4 a m. to 8 p.m., yet it is doubtful whether they covered twenty-four miles in one day.

DISTANCES.

As a rule distances should be from twelve to fifteen miles a day of actual march, and a halt every four or five days. For prolonged operations nothing over ten miles a day, including halts, can be depended on.

Fifteen to twenty miles a day may be done under exceptional circumstances. Anything over twenty is forced marching.

The following three examples of great marches may be of interest:—

NAPOLEON'S MARCH FROM BOULOGNE TO THE RHINE, SEPTEMBER, 1805.

Alison's History of Europe.

This is the grandest march on record, both as regards pace and numbers. Although apparently undertaken on the spur of the moment, everything had been most carefully planned beforehand, and the instant it became evident from Villeneuve's defeat by Sir Robert Calder, that all hope of invading England was gone, orders were issued to march. Strength, 150,000 infantry.

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(The cavalry and guns appear to have joined *en route*.) Distance, 400 miles. Time, 25 days. Rate, 20 miles a day of actual march, and sixteen miles a day including halts. Object, to surprise the Austrian army. Opposition during march, none. Although this march is unequalled by any other, it must be remembered that it took place under circumstances and facilities which could never be obtained in these days of telegraphs and publicity.

"The instructions given by Napoleon to all the chiefs of the Grand Army for the tracing of their routes, and the regulation of their movements, were as perfect a model of the combinations of the general as the fidelity and accuracy with which they were followed, were of the discipline and efficiency of his soldiers. The stages and places of rest, the daily marches of every regiment, were pointed out with undeviating accuracy, over the immense distance from Cherbourg to Homburg. . . . The troops simultaneously commenced their march from the coast of the Channel in the beginning of September, and performing with the celerity of the Roman Legions, the journeys allotted to them, arrived on the Rhine from the 17th to the 25th of the same month. . . . . A rigorous embargo was laid on all parts of the empire, the post was stopped, the troops were kept ignorant of their destination, and such was the effect of these measures, that they were far advanced on their way to the Rhine before it was known either to the Cabinets of London or Vienna, that they had left the heights of Boulogne."

SHERMAN'S MARCH THROUGH GEORGIA.

NOVEMBER, 1863.

General Sherman's Report.

In this march no attempt was made at rapidity or secrecy, the object in view being the moral and political effect produced by the passage of the army and the devastation of the country on a breadth of forty miles. "All the troops were provided with good waggon trains loaded with ammunition and supplies approximating twenty days' bread and forty days' sugar and coffee, a double allowance of salt for forty days, and beef cattle equal to forty days' supply. The waggons were also supplied with about three days' forage and grain; all were instructed, by a judicious system of foraging, to maintain this order of things as long as possible, living chiefly, if not solely upon the country." Distance, as traversed, from Atlanta to Savannah, about 250 miles. Time 27 days. Constant opposition and obstruction of roads by the enemy took place. Force 60,000 infantry, 5,500 cavalry, and 60 guns.

ROBERTS' MARCH FROM KABUL TO KANDAHAR.

AUGUST, 1880.

Official Account.

In this case the principal object was time, and the second to inflict a decisive defeat upon Ayub Khan, without which the march would have been useless. Force, 7,500 infantry, 1,600

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cavalry, and 18 mountain guns (7 prs.). About one-third of the troops were European. No wheeled guns or transport accompanied the force, everything being carried on pack animals. Above 8,000 camp followers were employed, raising the total to 18,000 men, and nearly 9,000 animals.

Total distance traversed, 321 miles. Time, 23 days. Rate of actual marching 15½ miles a day. Rate including halts, 14 miles a day. Opposition, none.

"Thus was brought to a successful issue one of the most memorable marches of modern times, an operation that had been practically unopposed throughout, owing possibly to the good offices of the new Ameer, and had fortunately been greatly assisted by the favourable condition of the standing crops of autumn corn, which served as the principal means of feeding the numerous animals. On the other hand, it had been carried out through a hostile country by a force which had no base and no assured line of retreat, in the event of a reverse; and which was entirely dependent on the country for its daily supply of meat, flour, and corn."

These three marches possess one common feature, namely, the complete accomplishment of the object in view.

HOUR OF MARCH.

The hour of march must vary with the climate and the season of year, usually 5 or 6 a.m is preferred, but circumstances must decide; for instance during the march from Kabul to Kandahar: —"For the first few stages the troops turned out at 2.45 a.m., and marched at 4.30; but later on when the thermometer stood at 100° in the shade at 4 p.m., an earlier start was effected at 2.30 a.m. Ibid.

An earlier start is advisable for infantry, but not for the mounted branches, for horses will not drink in the early morning, and harness, saddles, etc., cannot be so well arranged in the dark."

"The season of the year, the distance to be got over, and the climate, must determine the hour of setting out; it should be an understood thing, however, that the men should have their breakfast before starting." Lord Wolseley

HALTS.

Most authorities agree that there should be a halt of about ten minutes, half-an-hour, or even sooner, after starting, and five minutes halt after every hour. Should the march exceed ten miles there might be a longer halt about half way.

It should be an absolute rule that when the "halt" sounds, every individual should instantly halt wherever he may be. Some officers, especially mounted officers are rather apt to commence closing up, dressing, or fidgetting their men, forgetting that the whole object of the halt is to give perfect rest, and this cannot be obtained unless the men are left alone.

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In a long column of route, measures should be taken to ensure a simultaneous halt.

It should be remembered that during any accidental or unauthorised halts the troops get no rest. Infantry cannot take off their equipments, cavalry cannot dismount, and if anything they are more fatiguing then marching.

Avoid halting in villages, and never halt in a defile when the enemy is near.

INTERVALS.

Intervals are left between tactical units on the march on purpose to absorb accidental checks, and all stepping out, closing up, &c., should be prohibited, for if they are allowed, those in the rear of a long column will be either running or standing still during the whole march.

OPENING OUT.

There is a strong tendency in all troops, especially in hot weather, to open out or "tail off" and thus increase the length of the column, and this must be guarded against. The amount of lengthening or opening out is a test of discipline. With good officers and troops it should never exceed one sixth the length of the column itself. With bad officers and troops it will reach one-half, and in extreme cases the length of the column itself will be doubled.

This may seem a small matter when we read it, but let us consider it for a moment in practice. A Division is marching on a single road, and ought to occupy, as before shewn, from three to four miles. The general has arranged all his precautionary measures, such as the composition and distance of his advanced guard, on the supposition that the extreme rear of his column can be brought into action in about one hour. Instead of this the rear is between two and three hours off, the inevitable result being that if the advanced guard is attacked in earnest, the whole force will be beaten in detail.

GENERAL REMARKS.

Never parade your men for a march a moment earlier than necessary.

Make your first march short, if possible.

If it is found necessary for a column *en route* to retrace its steps, never "counter march," but "turn about."

Avoid night marches if possible.

Never allow columns to cross on the march.

Blucher would have appeared on the scene of Waterloo long before he did, had not two Prussian columns crossed each other when starting from Wavre.

German Official Account.

Again, on the occasion of Marshal McMahon's march to Sedan. "At the very commencement even of the march, on the first day, defective arrangements led to the columns crossing, and other irregularities."

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FLANK MARCHES.

If one army A, is marching, say due East, and another army B, is marching against it from the south; A is making a flank march.

The dangers of a flank march are rather strategical than tactical, for if proper precautions are taken by A, such as throwing out his cavalry well on the threatened flank, and further protecting it by flanking parties moving parallel to the line of march; the army should have ample warning and time to prepare. Moreover it must be an extreme case in which A was not aware from the outset of his situation, and could not regulate his order of march accordingly.

The topographical means by which the dangers of a flank march may be minimised belong to strategy rather than to tactics. It is sufficient to observe that A should, if possible, interpose some natural obstacle, such as a river or a mountain range, between his own army and B.

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Lecture XVII.a

CONDUCT OF OPERATIONS BY NIGHT.

GENERAL CONSIDERATIONS.

1. *The moral effects.*—Night attacks affect the efficiency of the troops attacked (1) by breaking their rest, (2) by alarming them, which alarm is more prejudicial in proportion to the boldnes and resolution of the assailants. Daring night adventures when skilfully and still more when successfully executed, raise the fighting value of the assailants by the confidence gained, and depress in proportion those who are worsted in the fight.

2. *Material effects.*—The assailant, when successful, obtains two great advantages—

(*a*) The saving of time; for at night all the preliminary stages of a battle are eliminated, and the final rush decides the issue.

(*b*) The diminution of loss; since the movements of the assailants being unseen, the defenders are unable to use their full numerical strength, so as to secure the best results from their fire.

Operations by night may be classed under three heads—
Marches.
Attack (both of a position, and merely to harass the foe).
The Defence.

MARCHES.

It is essential that troops should be practised in marching by night; for, apart from their use when an immediate collision is contemplated, these marches are frequently necessary in order to seize a position before the enemy can reach it, and to gain time either in advance or in retreat. The suffering and fatigue incidental to such marches with troops inexperienced in war will be minimised when careful training has been carried out in peace time.

All attacks, except when the opposing forces are in contact, are necessarily preceded by a march, on the conclusion of which the assault is delivered; but as the position is already half won when the troops are sufficiently close to assault without their presence having been discovered, the greatest attention with forethought for all contingencies, is to be given to arrangements for the march, which will be considered further in the following Section. The longer the troops can be allowed to sleep the greater will be their fighting value when day dawns; but at the

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same time, the object in view may be frustrated unless sufficient time is given to reach the desired spot while the night lasts.

It is not safe to allow for a force of 1,000 men making good more than 1 mile per hour at night, over an undulating and roadless country.

ATTACKS.

1. *Conditions favourable to attack.*—The conditions favourable to attack are—

(*a*) Discipline of the assailants.
(*b*) Want of discipline or war experience on the part of the enemy's troops, as may be assumed if it is found that their outpost duties are badly performed.
(*c*) The friendly attitude of the inhabitants.
(*d*) The weakness of any portion of the enemy's position.
(*e*) The proximity of the enemy, as lessening the risks and confusion incidental to night marches.
(*f*) The existence of woods, or other features favourable to the concealment of preliminary movements.

2. *Conditions unfavourable to attack.*—The unfavourable conditions are—

(*g*) The discipline and efficiency of the enemy's troops.
(*h*) The want of discipline in the assailant's troops; for officers, however efficient, cannot supervise their men closely at night.
(*i*) Ignorance of the ground and position held by the enemy.
(*k*) Any conditions adverse to the chances of effecting a surprise.

It is the duty of the commander to balance carefully the opposing factors, but when he has decided that the apparent advantages are commensurate with the risk, the operations once undertaken should be executed with the utmost energy, decision, and vigour.

3. *Reconnaissance.*—It is only the absolute necessity of acting without any delay, that can justify a night attack without a previous reconnaissance being made by the one or more officers who are to be entrusted with the difficult, dangerous, but honourable duty of guiding the column or columns.

No reconnaissance from a distance is sufficient. Those who are to guide the attacking columns should, even if well acquainted with the ground prior to its occupation by the enemy, traverse the route to be followed as far as, and, when possible, even beyond the enemy's advanced sentries.

No guides are quite reliable unless they have been accustomed to pass over the ground in the dark. Night changes everything; it becomes difficult to recognize a well-defined, beaten, and even familiar road. Obstacles on it so slight as by day to escape observation, may at night delay the advance, and even produce disorder.

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Reconnaissances must, therefore, be made systematically; every essential point should be noted, and the distances timed between natural and other easily remembered objects on the road.

The principal points that require attention may generally be classed under three heads:—

1st. The approaches to the enemy's line of outposts; the positions of his sentry line, piquets, and supports, and their strength.

2nd. The roads leading from the enemy's outposts to his position; the obstacles, natural and artificial, which lie in front of it, and the nature of the position itself.

3rd. The mistakes that can be made in the selection of the route, and how the way may be lost during the advance; the choice of the best route to avoid or circumvent, as far as practicable, the enemy's outposts, and, if possible, to avoid moving down wind.

N.B.—Dark, windy, rainy, or foggy nights are most suitable for small affairs; clear star-light nights, with a strong head-wind, for the movement of large bodies.

4. *Plan of attack.*—The commander, having acquired all the information obtainable from spies, friendly inhabitants, and the reconnoitrers, will determine on his plan. He should, in any case, obtain such a knowledge of the enemy's position as will enable him to select the most favourable point for attack—if possible it should be one of the most important points in that position—to select the best route leading to that point, and to decide upon the most suitable composition for his attacking columns. In order to ensure simplicity, the columns of attack should be as few, and as little subdivided as practicable. When the mounted arms of the service are employed, they will always be well separated from the Infantry, and well in rear of it. It can seldom be right to dispense with a support and a strong reserve, but they should be kept at a sufficient distance from the attacking troops so as not to be carried away by the confusion which any unfortunate panic might inflict upon those in front.

It is desirable that the different columns should be kept in communication as long as is possible: the simpler the plan of attack the better; ruses are apt to lead to confusion, though false attacks are often very useful.

The number of the troops employed in the actual attack should be as few as is thought likely to be commensurate with success.

The point selected will naturally be that most favourable for effecting the object, but it by no means follows that it should be the weakest, either naturally or for want of artificial defence. The operation will be greatly facilitated where the approach is sheltered from sight and sound, and is easy up to the immediate vicinity of the enemy's position.

5. *Guides.*—In a friendly country a capable officer will seldom have much difficulty in obtaining reliable guides. When the inhabitants are hostile, it may be necessary to sieze some men

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to act as guides; this should not be done until immediately before the enterprise, and of those siezed none should be released until the operation is concluded. Those selected to guide the columns should be placed in charge of non-commissioned officers, and actually tied to them to prevent any chance of escape. They should, however, be treated kindly and promised a handsome reward, conditional on their conduct. The outposts should be specially warned before the men are siezed, to prevent any inhabitants crossing over to the enemy's position.

6. *Orders to be issued.* —The following are generally applicable to marches whether a collision is contemplated or not:—

a. Object of the movement.

b. General idea.

c. The compass direction of the route to be followed, with exact description of the limits within which the attacking columns may advance previous to the final advance to assault.

d. Dress, equipment, amount of ammunition, and rations.

e. Distinctive marks and watchword.

f. Explanation of the necessity of preventing lights being struck, or of any one smoking, or speaking loudly, and prohibition of any bugle sounds.

g. Hour for assembly at and departure from point or points of concentration.

h. Order of march, distances between units, and how communication is to be maintained. In marching by night preparatory for an assault, the instructions laid down for route marching are reversed, and it becomes the duty of the head of the column to ensure that its communication with those behind it is maintained.

i. Halts, when to be made, and for how long. The men must always lie down during these halts.

j. Attitude to be assumed in case of sudden attack by the enemy, either in front or on the flanks.

k. Time and place for the final halt, preparatory to the attack. The final halt should be as short as possible.

l. Instructions for the assault, especially for the rank and file; and the signal for its being delivered.

m. Subsequent measures.

n. The position of the commander of the column, both during the march and at the final halt prior to the assault.

These orders should be concise, but so worded as to admit of no doubt. They will be communicated beforehand to those officers only from whom action is necessary, in order that the necessary arrangements may be made. Until the troops arrive at the point of assembly, prior to the march-off, no more will be made known than is absolutely necessary, in order to maintain secrecy. Before they move off, however, all should be so clearly explained that everyone may know the object in view, the compass direction of the attack, and what part he has to play in the operation.

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7. *Instructions for rank and file (to be read before they march off from the place of assembly).*—When a collision is contemplated, it must be impressed on the rank and file that no man is to fire, or even to load, without a distinct order from his own officer; and that, until it is daylight, the bayonet alone is to be used. The officers must enforce perfect silence, prevent anyone speaking above a whisper, and prevent their men firing until objects can be clearly seen in the morning. There is to be no cheering except by men charging, or until the enemy has left the position; and every man once engaged must understand that, with this exception, whilst it is dark he is to continue to advance in profound silence until the enemy is defeated

When the order for the assault is given there must be no straggling or breaking off; should it be still dark the closer the men hang together the better, and no one under any circumstances is to stop to help a wounded officer or man. Wounded officers must set an example in this respect.

If an entrance cannot be effected on account of obstacles, all except those at the head of the column will be ordered to lie down while the obstacles are removed by those at the head of the column, or by the detailed working party when necessary. As it will not be possible to keep units intact, each company, half company, or section should look to its leader, who cannot do wrong in striving to be first into the battery, keep, or other strongest part of a work. Officers should carry forward with them all the effectives around them, and the soldiers should follow the officer who leads them into the enemy's works. Should the enemy attempt to rally they must be vigorously attacked with the bayonet, and no halt permitted until the enemy is driven out of the works. The support will follow with all speed those who have taken the works.

These particular instructions for the rank and file should be read two or three times to the men.

8. *Equipment.*—The materials necessary for surmounting obstacles, and for entrenching the position when captured, must be prepared. They may be scaling ladders, light bridging, hay bags, fascines, gabions, &c., according to the nature of the obstacles to be encountered. They will be carried by parties specially detailed, and who should have a lighter personal load than the other troops; but it will not generally be advisable to deprive them of their arms and of all their ammunition.

9. *Distinctive Marks and Watchword.*—These will depend upon the climate and the clothing in wear. It matters not what they are so long as they are readily distinguishable. A white shirt over the uniform answers well. A watchword must be fixed on, and should be one difficult for the enemy to pronounce.

10. *Communication.*—Every effort must be made to ensure the maintenance of unbroken lateral communication between the columns of attack, and also between the several units of which

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each column is composed. A thin rope or strong cord passed from front to rear, and held up in the distances between those units, is a good plan for securing this communication, and for preventing the units in rear losing the road taken by those in front. The officer responsible for guiding the troops must arrange for the advanced party being provided with a few haversacks full of torn up paper, so that it may be laid as if for a paperchase. One man at a time would scatter a few scraps here and there as the advance is proceeded with, and the paper should be thrown a little to one side, so that it may not be trodden under foot. Under ordinary conditions the paper will be distinctly seen at night, but should it be temporarily lost sight of on light coloured sand or soil, or rendered invisible from the darkness which prevails on roads passing through woods, the trail may be quickly picked up by striking a match or using a lantern. Lateral communication between the columns, and between them and the reserve in rear, can only be secured by the care and vigilance of mounted officers.

11. *Signalling*.—Rockets with fireballs of different colours are best for signalling during night attacks. These signals must be arranged beforehand, and all staff officers made acquainted with them. No rockets should be discharged until the assault is delivered.

12. *Points of Assembly*.—The places of assembly, unless well known, must be distinctly marked; and from them the routes for the columns towards the enemy's position will be defined as clearly as possible without attracting the attention of the enemy. From the extreme points thus marked, accurate bearings should be taken and recorded of the direction to be followed after passing such points. When roads or plainly marked tracks exist, it will be sufficient to mark clearly any turns or branch tracks. This may be done by blocking those which are not to be used with stakes, stones, or heaps of earth, or sand or brushwood; for choice, such materials (*e.g.* stones) should be used as thoughtless men are unlikely to remove. When it is not possible to mark such turnings, men must be dropped from each unit as it advances, to remain until joined by the next unit, with which they will move forward, but not until they have seen their relief posted.

When no tracks exist, the route must be fixed by compass bearings, the points where any change of direction is necessary to be carefully noted, and the distances between clearly defined, and easily recognisable points measured and timed. This should be done by staff officers or commanding officers with their adjutants or orderly officers. All these officers should compare their compasses during the day to correct error.

Whenever the spot or spots selected for concentration prior to the advance are at a distance from the camp, staff officers and commanders of units must make themselves thoroughly acquainted with the road to them beforehand, so as to guide the troops

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thither in the darkest night without difficulty. Unless there is a well-defined track, accurate compass bearings on a fixed star or stars must be taken. Commanders of units and of columns paraded before marching to the point of assembly, must on no account quit their men. On arriving at the point of assembly they will send an officer to report their arrival to the staff officer, who should himself remain at a central point. When the final instructions are clearly understood, and all watches compared, the troops will move off unloaded, each column being guided by a specially selected officer.

13 *The Advance.*—The two important considerations to be kept in view during the advance are (*a*) to keep the enemy in complete ignorance of the intended attack; and (*b*) to maintain the right direction. The maintenance of absolute silence in the columns, the exclusion of horses known to neigh, the careful avoidance of any light or smoking, are necessary to conceal the intended attack; and the proper direction should be verified as far as possible by the natural features of the ground, and when the night is not too dark, by previously marked points, by the stars when they are visible, and failing these by* compass bearing, which should be used in every case from time to time.

It is desirable when marching by a star to select a fixed one on the decline, but not too near the horizon, in the required direction. As it sinks, another should be chosen, as near as possible on a similar bearing. In the northern hemisphere the relative bearing of the pole star, in the southern hemisphere the southern cross will be found of great assistance in maintaining the direction; a fairly accurate bearing can thus be fixed when no compass is available. Care should be taken to observe which stars coincide with the back bearing on the point of assembly.

14. *Formation of a column, &c.*—The following instructions for the formation of a column and for the conduct of the advance are given as a general guide:—

a. Each attacking column will be preceded by a "point." This "point" should consist of two or three men and a serjeant under an officer, all carefully selected for coolness, intelligence, good sight, and good hearing. The officer will be responsible for not loosing touch of the column. The "point" will move slowly, and will precede the advanced guard at a distance of from 100 to 200 yards.

b. The advanced guard will be provided with pioneers and materials for clearing obstacles.

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* In enclosed country a rough tracing from the map or reconnaissance sketch can be drawn on tracing paper, and placed over a piece of cardboard prepared with luminous paint. A scale and meridian should be plainly marked, by the help of the compass having its needle similarly painted, the route can be followed, whether on foot or mounted, on the darkest night.

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c. The attacking column at from 50 to 100 yards distance from the advanced guard will be in column of companies, half companies, or sections (or in fours,) with the ranks at 3 paces distance, and the files at 1 side pace interval, according to the nature of the route followed.

d. The support at from 200 to 400 yards in rear of attacking column.

e. Gun detachments should accompany the support ready to serve the enemy's guns when captured or to spike them if necessary. A detachment of Engineers should as a rule also accompany the support.

The reserve will be about half-a-mile in rear, and behind it will be the Artillery, the reserve ammunition, a supply of entrenching tools, and the Cavalry. When the enemy's position is approached, the distances between the "point" and the advanced guard and between it and the attacking column should be diminished by one-half.

It will be specified in the orders what the men are to carry. One day's rations should always be carried, and it will often be advisable to carry two. Water-bottles filled and greatcoats should also be taken. The more ammunition that can be carried without impeding the men's movements, the better.

Officers must be careful to ensure that the men do not fall asleep, that they keep in their ranks and maintain correct distance. Frequent short halts will be made.

Cavalry and Mounted Infantry will be kept entirely separate from the attacking columns; they can do little in the dark, and should not be allowed into contact with the enemy until day-break. Then if the attack has succeeded they will push forward with the Horse Artillery with all speed, endeavouring to get round the flank of the retreating enemy. If the attack has failed, they will do their utmost to protect the retreating Infantry by falling on the flank of the pursuing enemy. Signallers should accompany the support and the reserve, marching in rear of the columns, to be utilized when secrecy is no longer essential. If the enemy's outposts are improperly placed or withdrawn, the general advance will, when it is possible to do so without giving an alarm, be continued to within a mile, or perhaps half-a-mile of his position. The troops should then be halted for the shortest possible time that will enable formations to be corrected prior to the order or signal for the assault being given.

When outposts are met, every endeavour should be made to capture and destroy them without noise. They must be rushed in silence with the bayonet without cheering or a moment's hesitation the instant they are encountered.

15. *The assault.*—Just before the order is given for the assault, the company officers will repeat to their men, in a low tone, the gist of the previous instructions for rank and file, "No firing, bayonet only. Keep close to one another and to your officers.—Follow me."

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16. *The support.*—While the final dispositions are being made for the assault, the support will take up a position within 300 or 400 yards of the assaulting column, ready to move forward in case of success, or to stand fast and cover the retreat of the attacking column if it be driven back. Troops repulsed in the attack should endeavour to fall back towards the flanks of the support so as to leave its front clear.

17. *The reserve.*—The reserve, followed by such Artillery as may have been ordered to accompany it, will follow the support at a distance of about half-a-mile, and await orders by signal or otherwise.

18. *Occupation of the captured position.*—The evacuation of the position by the enemy being notified to the reserve by signal or messenger, it will advance and assist in making the position secure from any offensive return of the enemy. The attacking column and support will take up the pursuit, and the Cavalry and Mounted Infantry will push forward as rapidly as possible in a line parallel to the enemy's line of retreat, keeping clear of all encounters with him until daylight Troops will be told off to defend the different portions of the position, and the ammunition will, if necessary, be completed, and the reserve ammunition brought up.

19. *Pursuit.*—The enemy will be pushed with every possible vigour in rear by the pursuing Infantry, whilst mounted troops will harass his flanks; reports to be sent back when any definite information is obtained. Mounted troops should not hesitate to ride down a defeated enemy and break his formation, even at a loss to themselves.

20. *Failure of the assault.*—The most carefully thought-out arrangements must be made beforehand to provide for failure, though no orders should be given on this subject to the troops. The commanders of the support and the reserve will arrange for moving quickly into the positions selected for them, and will take care the tracks leading to them are clearly marked out. Lanterns may then be advantageously used for this purpose. As the retreating or repulsed troops arrive they will be placed in position by the commander of the support or reserve, as may have been ordered by the officer in command. These officers will be solely responsible for placing the troops, irrespective of their rank and that of the officer who had command of the assaulting column. Every endeavour will be made to get battalions, and even companies together. If the whole force is obliged to retire, the rear-guard will be formed from the reserve, and from those troops which have not been engaged.

21. *Minor Attacks.*—The foregoing suggestions refer to serious attacks made on a large scale for the capture of the enemy's position, or with the intention of destroying his army. Very great damage may, however, be done to an enemy, his rest disturbed, and his troops demoralized by the bold handling of even one company.

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The officers and non-commissioned officers having reconnoitred the selected ground as carefully as possible during the day should move forward at night (the darker, dirtier, and more inclement the better) on an extended front, their groups at no greater interval than 10 or 15 yards in order that the general idea may be maintained, and loss from their own fire avoided, and, if possible, these should be connected with a light cord. When the time arrives for opening fire, the connecting files between the groups should fire independently, and the groups by volleys; the object being merely to cause annoyance and create panic, during which it is very likely some of the enemy will fire on their own people. The officer in command should, when his object is effected, cease firing and withdraw in silence. Such isolated attempts are often very desirable when a night attack by the enemy is anticipated, Active, enterprising officers can, by cutting in on the rear of the enemy's outpost line, do much to demoralize and shake the confidence of their opponents.

THE DEFENCE.

1. *The Defence.*—The arrangements for defence may be considered under three headings:—

The Outpost Line.
Preparation of the Position for Defence.
Defence of the Position.

2. *The Outpost Line.*—The duties of outposts have been described, but here it may be stated that when a night attack is expected, greater risks may properly be incurred by the outpost line than is desirable upon ordinary occasions, in order to obtain the earliest possible information of an impending attack.

The senses of sight and hearing vary so much in individuals, that company officers should bear this in mind when detailing their men for duty. Men expecting to be attacked have often their ears and nerves so strained that they imagine they hear noises, troops marching, &c.

3. *Preparation of the Position for Defence.*—This includes the clearing away of cover in front, marking distances, creating obstacles, and the preparation of mechanical arrangements for laying guns and rifles on spots over which the enemy's advance may be expected to move.

The greater distance to which, up to 1,000 yards, the front can be cleared the better; but it will seldom be feasible to effect much clearance for more than 300 or 400 yards. Trees and brushwood should be cut down, walls and banks levelled, and buildings mined. Arrangements, when possible, should be made for setting fire to hay or corn stacks or wooden buildings, to light up the ground over which the enemy's troops must advance. The ranges of this lighted zone should be measured and carefully noted.

The nature of these will depend on the time and material available for their construction. Abatis strongly picketed down,

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and with a wire entanglement in front, and if possble provided with self-acting fougasses or land mines, form the most effective obstacles; they should be made especially strong at the weakest points of the position, and there defended by quick-firing or machine guns. The distance at which these obstacles are to be placed must depend on circumstances, but they must necessarily be sufficiently close to enable the defenders to recognize, either by sight or by sound, the presence of the enemy attempting to destroy them.

The position should be divided into sections, under separate commands, and the troops told off for each should be furnished with a sectional reserve. A general reserve will be stationed in a central spot, with easy access for traffic and with telegraphic or telephonic communication. The officers will make themselves thoroughly acquainted with the ground in front of their respective sections, the commander of each forming his plan for the defence. A rallying point, fixed in rear, must be well marked, and officers will make themselves thoroughly acquainted with the shortest way to it. When the front is not covered by outposts, each sectional commander must provide for the safety of his portion of the line by listening posts established in advance, and frequent patrols outside the line of obstacles. Whether there are outposts in front or not, all officers and non-commissioned officers should by means of patrols become thoroughly familiar with the ground in front of the position, both for the purpose of inflicting loss by fire on the enemy and of undertaking offensive returns. All ranks should be made to understand that their honour depends upon maintaining the position confided to their charge.

4. *Defence of the Position.*—The general system on which this should be based is that the firing line should be placed in accordance with the scheme of defence, the sectional reserves being well posted under cover within supporting distance. When the enemy approaches the line of obstacles, fire or light balls should be thrown behind him to make him a clear mark for rifle and artillery fire. The Artillery will open with canister, the machine guns will fire, and the Infantry will deliver carefully controlled volleys, the men being cautioned, when they cannot see the enemy, to bring the rifle to the horizon and then let it sink a little. Independent firing is in no case to be permitted.

If the enemy surmounts the obstacle, the defenders will cease firing and by a vigorous charge endeavour to drive him beyond it, taking care to halt when they have done so; the Artillery will be careful to cease firing when the Infantry do so, preparatory to attack. When the firing line charges, it will be replaced by the sectional reserve, which will not, however, quit the position. The general reserve will remain steady and ready to move in any direction. The artillery and machine guns will be limbered up and withdrawn the moment the enemy effects an entry. If he should do so, the sectional reserve will charge and remain at all hazards on the danger side of the artillery while it

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is being removed. It is of the utmost importance at such a time to keep the troops in formed bodies, and not to allow their energy to be expended in desultory fights. They should be led forward in rapid vigorous attacks, and reformed as quickly as possible, whether successful or unsuccessful, in the most sheltered spot. As offensive tactics are at such moments most suitable, no firing should be allowed and strict silence should be maintained.

If the enemy cannot be driven out by the local defenders and the sectional reserve, the general reserve will be brought up and a determined attempt made to drive them out. Even should final success not be possible to the troops on the ground, they should at all hazards remain in the position until daybreak, so that the enemy may not have the cover of night to prepare it for defence.

5. *Retirement from the Position.*—When it appears to the officer in command doubtful whether he will be able to hold his position, all guns, reserve ammunition, and such like impedimenta, will be sent to the rear, and in campaigns with uncivilized nations, all wounded men also. Such escort as may be necessary should be taken from the troops which originally formed the outposts, or from others who may have suffered losses, care being taken to provide reliable guides to the position selected in rear. This new position should be occupied, and arrangements made for lights to guide the main body to it from the old position, should the main body be eventually forced back before the day dawns.

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Lecture XVIII.

DEFENCE OF A HOUSE.

The following Lectures though not included among the subjects comprised in the Tactical Syllabus are added at the request of numerous officers of Volunteers, for whose information the following preliminary definitions are given.

ABATIS are small trees or limbs of large trees laid close together, their butt ends being staked or secured to the ground. Twigs and small branches are removed and the remainder are pointed, facing the enemy.

N.B.—Pine trees are useless as their branches point backwards.

WIRE ENTANGLEMENTS are also used as obstacles. They are formed by driving stakes into the ground in parallel rows arranged chequerwise. Three rows at least should be used. The stakes should all be 6 feet apart and their heads should be connected at 2 feet from the ground by stout wire crossing in all directions.

A SALIENT ANGLE is any angle in a work or building which points outwards. Thus in a house fronting North the angles formed by the East and West sides are salient angles.

A RE-ENTERING ANGLE is one which points inwards, thus in the case above imagined, if from the North side of a house a porch projects, the angles formed by the porch and the house are re-entering angles.

A SALIENT is any portion not necessarily angular, of a work or a wood which projects towards the enemy; and

A RE-ENTRANT is any portion, the form of which recedes from the enemy.

A KEEP OR REDUIT is a work or building in the interior of a larger one. Thus if a village be fortified, any large building in the interior may be also fortified separately, with the intention of prolonging the defence after the outer line has been captured.

FLANK FIRE is that which from one part of a work sweeps along the front of another and thus aids in its defence. Suppose a long line of loop-holed wall, A B, to be attacked. The assailants might make a rush and get under the loop-holes, the fire from which could not be depressed sufficiently to hit them. Having reached this point, the assailants might with impunity proceed to blow in the walls with explosives But if from one end of the wall, B, another portion of wall, B C, projected at right angles, or nearly so from A B, the fire from B C would sweep along the front of A B and take effect on the assailants, no matter how close they might be to it. Reciprocally, that portion of A B which is nearest to B C would afford it what is termed "flank defence."

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Flank defence is one of the most important elements in fortification.

TAMBOURS. To afford flank fire as already described, where no existing facilities are forthcoming, tambours may be constructed. They are simply works projecting from any given line of wall or other defence, so as to afford room for about half-a-dozen rifles to flank it. They may be triangular or rectangular in shape, and may be constructed of "dry" that is loose masonry, wood, or railway plant; the whole if possible roofed over and covered with earth. They may be elevated so as to give two tiers of fire, half sunken or sunken, in which latter case they are excavations, and the muzzles of the rifles are just about the level of the ground.

MACHICOULIS GALLERIES are existing balconies utilised for defence by building a parapet on the exterior with hearthstones, sandbags, boards, &c., and piercing the floor with loop-holes, giving downward fire. Should no balconies exist, Machicoulis may be improvised by thrusting strong beams out from the house and planking them over.

Loop-holes are of two kinds, horizontal and vertical, the former give lateral range, the latter admit of elevation and depression of fire. From the outside they should appear as narrow slits about 3 inches wide by about 12 inches long or high. Internally they are made with a "splay" or widening out. The minimum distance apart of loop-holes depends on the thickness and strength of the masonry in which they are cut. From 4 to 6 feet apart is the usual limit. In strong walls 9 inches thick they might be made at intervals of thirty inches. Loop-holes can be made with crowbars, chisels, and hammers, or pickaxes. When near the ground they should always be horizontal. Very thick walls, such as those of churches, cannot be loop-holed and fire must be delivered from windows and doors.

Doors, lower windows, &c., may be barricaded, and weak portions strengthened by placing against them boxes, barrels, cupboards, pianos, &c., and then filling them with earth. Walls of dry bricks or stones may also be built up inside.

A "banquette" is a platform of earth or wood on which men stand to fire. It is assumed that men fire (standing) at a height of 4ft. 6in. Thus a wall of 6 feet high might be made available for fire by having a banquette raised to a height of 1ft. 6in.

Buildings may be used for defence under different circumstances, either singly or in combination with others, as follows:—

1. As tactical points in the battlefield, either as advanced posts, as supporting points in the line or on a flank, or as rallying points to cover retreat.
2. As reduits to a more extensive locality, rendered defensible, such as a village or wood.
3. As isolated posts on a line of communication.

A substantial house can quickly be converted into a redoubt, giving absolute security against cavalry and very great advantage

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in a contest with infantry; but unless the walls are very massive they can be readily breached by field artillery, and the bursting of shells inside the building, combined with the fires probably kindled by them, will make the prolonged defence of an ordinary building subjected to a combined attack of infantry and artillery almost hopeless. No banking up of earth against the lower parts of the walls will have any effect in preventing shells from setting fire to the building.

To fortify a building the following are the successive steps to be taken:—

FOR A VERY HASTY DEFENCE: TIME 1 TO 3 HOURS.

(*a.*) Remove the inhabitants and all combustible matter and provide water.

(*b.*) Barricade doors and accessible windows so as to resist ingress and musketry fire. Inaccessible windows should be at least masked so as to hide the defenders and the glass broken outwards. One door with a moveable barricade, or a window with a ladder may be reserved for escape.

(*c.*) Make loop-holes, using an axe in wood, picks or crowbars in masonry, or by removing the tiles at the eaves.

(*d.*) Clear away all cover in the vicinity as far as time allows.

CAREFUL PREPARATION: TIME 24 TO 48 HOURS.

(*a.*) Make a rough survey of the building and its vicinity and arrange your plan of defence, determine what outbuildings or parts of the main building are to be destroyed, what buildings or trees in the vicinity should be left standing as screens from distant artillery fire.

(*b.*) Clear an open field of fire round the house, removing or burning all inflammable materials, and saving everything that may be useful for obstacles or barricades. Improve any existing fences, &c., that will serve as obstacles; fill up hollow ways, depressions, &c., that might afford cover to an enemy, with abatis, brushwood, rubbish, &c., and level or burn any buildings from which the enemy might fire.

(*c.*) Prepare the defence of the house by barricading windows and doors, (leaving one door for use which must be specially dealt with), make loop-holes and provide flank defence, obstacles, and Machicoulis galleries. Inside the building improve the communications by enlarging doorways, breaking through partition walls, &c., make banquettes where necessary, place in each room a large vessel full of water and smaller ones to draw it; also a heap of earth to throw over any part set on fire. Arrange store places for provisions and ammunition, the latter below ground if possible, set apart a place for hospital, and prepare latrines. If the house is likely to have artillery fire brought against it, it may be of use to shore up the floors and cover them 3 inches thick with earth or sand.

(*d.*) In the case where distant artillery fire is to be feared, provide shelter trenches for the garrison outside the building

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usually on its flanks. Existing fences or folds of the ground may answer the purpose.

GARRISON.—Allow two men for every door, window, loop-hole, or opening to be defended, and also a reserve of one fourth the above. Always allot, if possible, a tactical unit.

ATTACKING A FORTIFIED HOUSE.—A house may be attacked by infantry by day or by night, or a combined attack by infantry and artillery may be made.

AN INFANTRY ATTACK BY DAYLIGHT would probably be made by throwing forward skirmishers and gradually strengthening them until they formed a long enveloping line of marksmen, lying down under cover if possible and concentrating their fire on the loop-holes of the front to be attacked. Protected by their fire, the storming party advances accompanied by engineers, or a working party with axes, sledge hammers, gun cotton, or whatever means are available for removing obstacles and forcing an entrance.

The advance would probably be made over ground on which the defenders fire was weakest, probably at a salient, and having penetrated the line of obstacles at that point, the assailants would endeavour to extend close to the walls under the line of fire of the defenders and so grapple with and bend their rifles. If flank defence existed it would be neutralized as far as possible by a concentrated fire on the loop-holes. The entrance would not be attempted at a salient which would be difficult; but at a door or window, or by breaching the wall with gun cotton.

A Tambour if low or weakly constructed might offer an easy access to the interior of the building.

Once inside the building, if the defenders resist, it should be set on fire.

Two or more attacks should generally be made at the same time to distract the attention of the defenders and multiply the chances of success.

AN INFANTRY ATTACK BY NIGHT is more likely to succeed than by day, because the approach can be made with little or no loss. It is only while removing the obstacles and endeavouring to force an entrance that the defenders fire will be effective.

The attack should be made by surprise as far as possible, and a previous reconnaissance is of great importance to avoid mistakes and confusion in the dark, and to ascertain what provision is to be made for destroying and overcoming obstacles. The troops should be assembled secretly as close to the building as possible, and the different columns of assault would move directly and silently to their prescribed points of attack.

If breaches are to be made by gun cotton or gun powder, every effort should be made to lodge the explosive and ignite the fuse before the attack is discovered, and to assault immediately the explosion takes place. The assailants should not stop to fire but should endeavour to come to close quarters at once.

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A COMBINED ATTACK BY INFANTRY AND ARTILLERY ON A HOUSE EXPOSED TO DISTANT ARTILLERY FIRE.—The artillery commences the attack, concentrating the fire of available guns on the building. This fire would probably drive the defenders out of the building. If it also ruins it and sets it on fire, the infantry on their approach will only have to deal with the defenders of the outer line of defence, if there be one. If, however, the building should still be defensible when the attacking artillery is obliged to cease fire, owing to the nearness of their own infantry to the house, and the attacking infantry cannot force their way in, it may be necessary to bring up some guns to within musketry range to breach the walls.

A COMBINED ATTACK BY INFANTRY AND ARTILLERY ON A HOUSE SCREENED FROM DISTANT ARTILLERY FIRE.—This should commence in the same manner as an attack of infantry alone by day; but as soon as the firing party of infantry has established a decided ascendancy over the fire from the building, two or more guns should be brought up into line with them, screened as much as possible by slopes of the ground, trees, &c., and by their fire break down obstacles, breach the building and set it on fire. When the artillery fire has prepared the way, the infantry assault should be made.

DEFENDING A HOUSE AGAINST ASSAULT.—In the case of an infantry attack by day, accurate fire from the building should hinder the approach of the enemy and inflict loss upon him. Should he succeed in establishing an overpowering line of fire, it would be good policy to withdraw the men from the loopholes until the storming parties advance, and then concentrate fire on them; particularly while checked by the obstacles. This fire must be as rapid and deadly as possible, and will probably beat off the attack.

In the case of a night attack by infantry, surprise should be avoided by all possible means, particularly by careful patrolling; and any attempt to lodge explosives against the walls secretly, must be carefully guarded against. When the attack takes place, a grazing and flanking fire on the obstacles round the house, delivered as rapidly as possible, must inevitably take effect and will probably frustrate the efforts of the assailants.

In defending a house against a combined infantry and artillery attack, it will be generally best to reserve the fire of at any rate a portion of the garrison, until the guns are brought up —in the case where they must come close to the building, and then to concentrate fire on the gun detachments, and finally on the assaulting columns.

In the case where artillery fire can open from a distance, the garrison should generally be removed from the building during the cannonade, and be placed in trenches near it, or under cover

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in rear, until the near approach of the attacking infantry compels their artillery to cease firing, when, if the buildings are still tenable, they should be rapidly reoccupied and the entrances—of which there should be sufficient—barricaded. Should the buildings take fire during the cannonade, a few volunteers should endeavour to extinguish the flames.

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Lecture XIX.

DEFENCE OF A VILLAGE.

The defence of a village is usually wasteful of men and it should always be decided whether a village would require more men to hold it than its tactical position may be worth. The number of men required to hold a similar front of ground affords a fair test of this point.

The principal advantages of villages are:—

1. They can be made defensible quickly and generally admit of protracted and obstinate defence.

2. They conceal the numbers and dispositions of their garrisons and of the troops in rear of them.

3. They afford shelter to their garrisons before they are fortified.

Their disadvantages are:—

1. The dispersion of their garrison and consequent difficulty of supervision.

2. Liability of defenders to loss by splinters, &c., under artillery fire.

3. Liability to be set on fire by shells.

The object of holding a village may be

(*a.*) *As part of, or on the flanks of an army in position.* In this case they should be strongly fortified on the front, or on the front and flanks according to circumstances.

(*b.*) *As an advanced post or outpost of an army in position.* In this case their distance from the said position and its supporting fire, must determine the amount of fortification.

(*c.*) *As a detached or isolated posts.* In this case an obstinate defence will be required all round.

The suitability of villages for defence depends upon:—

1. *The form and nature of the surrounding ground,* which should be such as not to include commanding positions within close range; to afford a clear field of fire with a small amount of labour; and if necessary to permit of the unimpeded advance of troops making a counter attack in any required direction. The nature of the materials of which a village is built, must also be considered with reference to its inflammability.

2. *The shape of the village and nature of the houses, &c.* The suitability of form to the tactical position affects considerably the time required for preparation, as well as the obstinacy of the defence when prepared. Straggling hamlets lying end on to the enemy can be made very strong against flank attacks, but can easily be raked by fire and require much artificial addition in the form of shelter trenches, &c., thrown out on their flanks, to increase their direct fire; their length may also be so great as to weaken the support they might derive from positions in rear of them, in which case it may be necessary to abandon and destroy as far as possible the more advanced portion of the place, and to withdraw the main line of defence towards the centre.

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Similarly villages broadside on to the enemy are strong in front and safer from fire, but require more attention on the flanks. Those of a circular form are suitable for all positions.

DETAILS OF DEFENCE.

The officer in command must first ascertain the object in view and adapt his defence accordingly.

If occupied only as an outpost for a night, place temporary barricades on roads and approaches, and loophole the walls in the required direction.

GENERAL PRINCIPLES.

The following general principles must be borne in mind.

The fire of modern artillery will quickly knock a village to pieces and to conduct the defence from the village alone is now impossible when guns are brought against it.

Therefore we must have two lines, the first line well in advance of the village covered by trenches, hedges, walls, &c., and a second line in the village itself.

The first line must be traced far enough in advance of the village to be out of range of splinters from masonry, and near enough to admit of the second line firing into it, if captured. About 50 yards would be a minimum distance, the maximum must depend in great measure on the strength of the garrison, about 100 yards would be a fair average.

With regard to the second line; never post men immediately outside buildings which are shell proof; loophole and prepare them, and then let the men retire behind them and use them as cover until required for action.

Never allow men who have just retired or been driven out of one position to join or mix with troops defending a second; they should be collected in rear and re-formed.

Never allow a fighting line of one corps to be supported by men of another. Keep tactical units intact.

REGULAR FORTIFICATION.

The first thing necessary is to survey the village and obtain a good plan of it.

Then arrange your first line, giving each regiment its own portion of fighting line and supports. (Main body not required.) Let each unit be responsible for its own portion of shelter trench, hedge, wall, abatis, clearance in front, &c.

Then arrange your second line, the men of which should be allotted similarly by tactical units and be employed in loopholing houses, preparing them for defence and joining them to each other by means of stockade work, shelter trenches, &c., so as to make a continuous line. Any houses, &c., which are in front and cannot be taken into the line, should be levelled.

When the attack commences, the front line lie down in their trenches under the preliminary artillery fire, and the second line shelters *behind* the houses. When the enemy's infantry advances,

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the front line comes into action, fed by their supports. If repulsed they retire round the flanks, and reform in rear of the second line, the men of which take post and continue the defence, because the fire of attacking artillery is now masked by their own infantry and must cease.

The artillery of the defence should be posted on the flanks of the village, if possible on high ground, crossing their fire in front.

If mitrailleurs are available they should be posted behind barricades, where they can sweep roads, streets, &c.; they must not be exposed to artillery fire at the commencement of the action, but reserved for the attacking infantry.

A bomb proof building in a sheltered situation should be set apart, or bomb proof cover should be constructed for the accommodation of sick and wounded.

GARRISON.—Allow two men per pace (one as a minimum) of the circumference to be defended, whether in first or second line. As a general rule about ⅔ the entire force would be in first line, the remainder in the second.

With an adequate garrison from 12 to 18 hours should suffice to fortify a village strongly.

KEEP OR REDUIT.

When a village is intended to be held to the last, a substantial building or group of buildings and enclosures may be prepared for defence as a keep. Here a resolute few must hold out till assistance arrives. It is useless to prepare a keep unless there is some prospect of assistance, for it will sooner or later be reduced to ruins by artillery fire. The real object of a keep is to facilitate recapture, by having as it were one foot in the place, and as its garrison cannot be large and must be kept separate from the rest, it could not attain this result unaided.

ATTACK OF A VILLAGE.

The attack of a village is usually attended with much difficulty and heavy casualties.

Artillery fire should first be brought to bear on the village and front line: then attack with infantry. Should the second line prolong the defence after the first has been repulsed, some guns might be brought up to close range to effect a breach, as in attacking a house. A village may be simply shelled until it is set on fire, but if the defenders cannot remain in it, neither can the assailants.

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Lecture XX.

DEFENCE OF WOODS.

Woods present one or two peculiar features in war. They screen the defenders so completely that it is impossible to obtain any estimate of the force holding any given wood. Once within a wood, both sides are on equal terms, all tactical formations become dissolved and the experience of past wars shews that when once an attack has pushed in, it nearly always succeeds in driving out the defenders; therefore the enemy should be kept beyond the edge.

The military value of a wood depends on its (1) position, (2) its extent, and (3) its nature.

(1). With regard to its position, the front or outer edge of a wood may coincide with the front or flank of a position, in which case it would be highly advantageous. Or it may be situated in front of a position so that it cannot be included in it, in this case the edge in front of a position should if possible be felled inwards, the trees interlaced, and roads strongly barricaded to prevent the enemy emerging from it.

(2). With regard to its extent, a wood may be of a size adapted to the requirements of the case, or may be so large that to hold it all is impossible. In this latter case, the portion to be held should be isolated from the rest by existing roads, streams, clearings, etc, or should none exist, by felling broad "belts." A "belt" is 4 or 5 rows of trees felled towards the enemy and entangled. Behind this clearing or belt at about 20 yards or so a shelter trench should be made. Choose low ground if possible for clearing or belt, and higher ground for the trench.

(3). Its nature: The important feature in a wood is the presence or absence of undergrowth. Some woods are open and passable to all arms, some are passable to cavalry and infantry, some to infantry only and some are totally impassable. Other features to be noticed are, any rivers or streams flowing through it; any roads or paths; any clearings or openings.

The vital part of a wood is the edge nearest the enemy.

A wood with a badly defined edge—that is to say where the trees instead of ceasing abruptly at a given line, become gradually thinner and merge by degrees into the open plain—such a wood is most difficult to treat, since at any given spot, assailant and defender are on almost equal terms. In this case the general line of defence must be drawn as well as circumstances will admit, and everything in front felled or cleared as far as possible. At any rate a broad belt should be cleared, behind which a shelter trench should be made. Logs might be laid on the top of the excavated earth as cover for the men's heads, loop holes being driven through the earth, and the logs supported at intervals with cross stakes.

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A wood with a well defined edge and open ground in front is a great element of strength even as it stands, but if the edge be fortified with the outer trees felled as abatis and trench as just described it ought to be impregnable. If time admits, it would be better to throw up a small parapet with a command of five or six feet, this will enable the defenders to see over the abatis in front. Logs or head cover should be provided. Should any very large trees be found near the edge they should be left standing. The labour of felling is immense, and they give good cover.

If the edge instead of being straight, is broken into salients and reentrants, fortify the salients first, drawing the trenches round the heads and carrying them slightly to the rear but not too far or the men on the flanks of two adjacent salients will fire into each other. At the bottom of the intermediate reentrant, a short length of trench may be traced so as to fire directly to the front.

If the defence is to be purely passive, carry a line of abatis right across the mouth of the reentrants, nearly level with the heads of the salients, so that the fire from the flank of each salient may cross in front of it.

If it is intended to make counter attacks the reentrants should not be obstructed.

SUPPORTS should be provided as usual. If the wood is thin, a trench or cover of some sort will be required, but if the wood is fairly thick, bodies of troops in rear of the fighting line are safe if they are placed just so deep in the wood that the open cannot be seen between the trees.

MAIN BODIES or small local reserves should also be provided for the purpose of instantly attacking the enemy at any spot where he may effect an entrance and driving him out.

As already stated in the defence of villages, tactical units should be kept intact. A given length of defensive line should be handed over to each regiment or corps in proportion to its strength and the officer commanding it should be held responsible for the proper preparation and distribution of his own fighting line, supports and main body.

The lines by which supports, main bodies, ammunition, sick bearers, &c., should advance, should be marked if possible by clearing away small trees, or "blazing" the trunks of large ones.

GARRISON.—Two men per pace of fighting line as a maximum, one man as a minimum. The former will include supports and main bodies, the latter will merely furnish a fighting line.

ARTILLERY should be placed if possible on the flanks of a wood, crossing their fire in front. Should the wood be so large that the guns must be posted in the wood they should be placed near roads where they can retire if required. They should be spaced at wide intervals, posted in gun pits if possible and concealed from the enemy's view.

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CAVALRY should be placed wherever they will be able to make a dash at the enemy's infantry after a repulse. They must remain near the edge well under cover, until required to act.

FIRST LINE.—The above, that is to say fighting line supports, main bodies or local reserves and whatever cavalry and artillery may be acting with them, form the first line.

SECOND LINE.—A second line similar in all respects to the first may be prepared at any suitable position, probably about a mile in rear of the first, or the troops forming the second line may be simply kept in column ready to move in any required direction. In rear of them again would be held the reserve.

ATTACK OF A WOOD.—Reconnoitre as far as possible, ascertaining what length of front is fortified. Select the point of attack and commence with artillery fire, then let the infantry advance. The enemy should be held all along the line if possible by demonstrations or false attacks, to prevent him from reinforcing the point really threatened. When the attack has succeeded in penetrating at any point, fresh troops should be pushed in at once to confirm the success and to drive the enemy back through the wood.

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Hints to Candidates at Examination.

1. On receiving your paper read it slowly and deliberately all through.

2. Then select any question *you know you can do*, answer it and lay it aside : then choose another and so on.

Never attempt to answer a paper in the order in which the questions are set.

3. Before answering any question, read it carefully through two, three, or four times, until you have thoroughly grasped, not merely its words, but its purport and object.

4. If a question puzzles you after a fair trial, leave it and pass on at once to another. The required answer will probably occur to you before long, but in any case remember you are working against time and cannot afford to delay.

5. Write the number of each question on the heading or margin of each page or half-sheet, you can then easily refer to any given question.

Of the above, No. 3 is by far the most important, and a long experience both as Candidate and Examiner, has convinced the author that numbers of candidates fail to do themselves justice simply from neglect of it.

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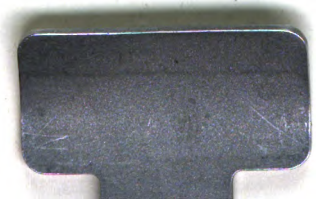

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